Dental Digest

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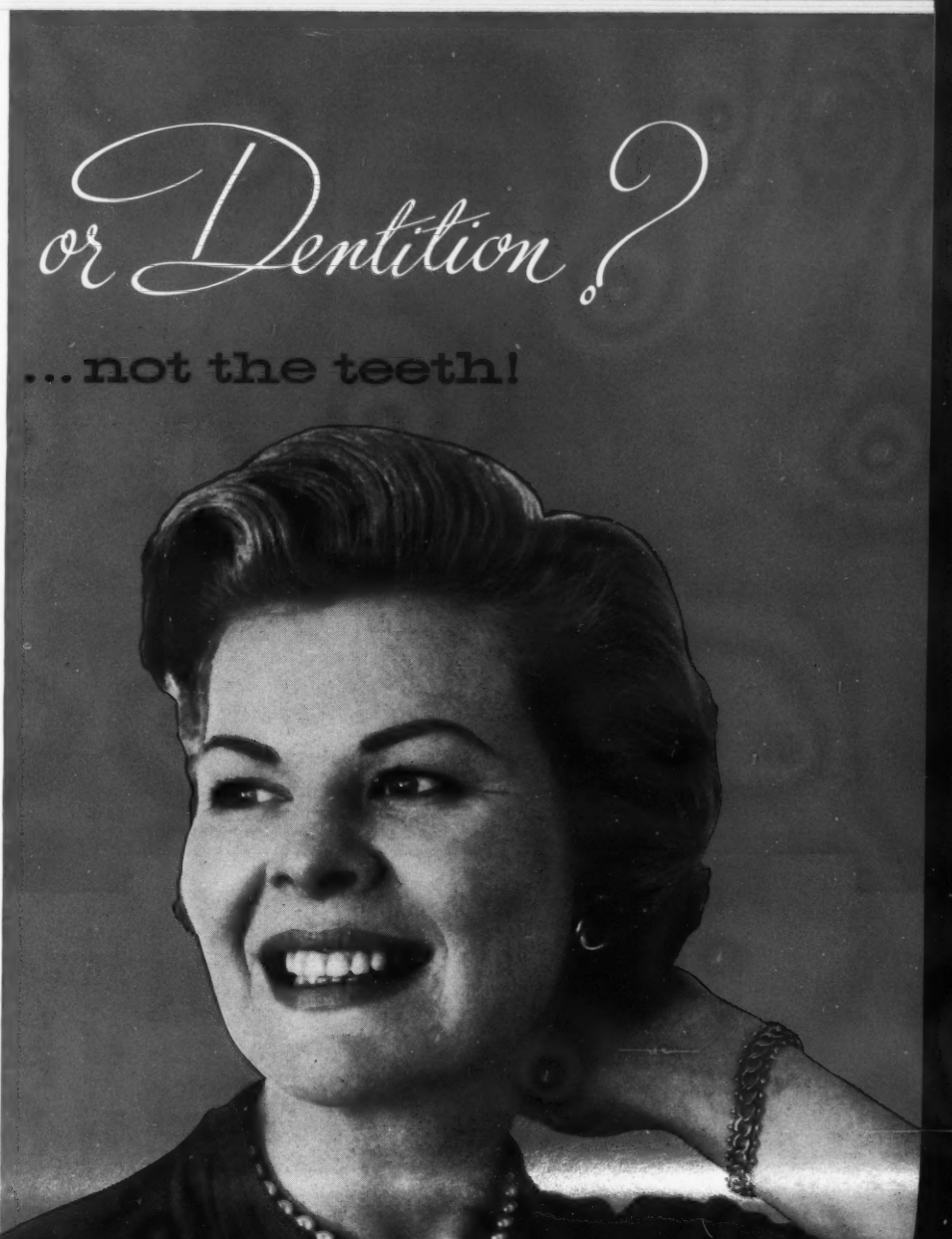

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AUGUST 1960

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About Our CONTRIBUTORS

HAROLD C. KILPATRICK, D.D.S. (University of Pennsylvania, 1932) has long been interested in the applications of high speed techniques and first published on this subject in the June 1955 issue of DIGEST. He has since published a textbook HIGH SPEED AND ULTRA SPEED IN DENTISTRY (W. B. Saunders) and in the current issue collaborates with his colleague RICHARD F. SNEDAKER, D.D.S. (New York University, College of Dentistry, 1955) in a discussion of the value of high and ultra speed in children's dentistry, HIGH SPEED AND ULTRA SPEED IN PEDODONTIA.

LEO STOLL, D.D.S., (New York University College of Dentistry, 1931) is a general practitioner who has made important contributions to the fields of occlusion and articulation. He presents in the current issue the final and eighth installment of a serial article, CLINICAL APPLICATIONS OF OCCLUSION AND ARTICULATION.

THEODORE P. FUHRER, D.D.S. (The Thomas W. Evans Dental Institute, University of Pennsylvania, 1929) is a general practitioner who has contributed other articles to the dental literature. He publishes in DIGEST for the first time this month, presenting PROCEDURE IN MODELING COMPOUND FULL IMPRESSIONS.

HARRY L. PAGE is a pioneer in prosthetics and has devoted a lifetime to research in this field. Many of his original and instructive articles on various aspects of this subject have appeared in DENTAL DIGEST. This month Mr. Page presents the first of a two-part article, HINGE-AXES: ARGUMENTS AND TYPICAL EXAMPLES: PROOF.

WOODROW S. MONICA, D.M.D. (Tufts Dental School, 1934) is a general practitioner who has made an extensive study of headache. Doctor Monica published in DIGEST on this subject in December 1958. This month he has chosen a different subject and presents BUCCAL AMYLASE AS AN ANTI-INFLAMMATORY AGENT.

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HIGH SPEED *and* ULTRA SPEED

in Pedodontia

HAROLD C. KILPATRICK, D.D.S.,
and RICHARD F. SNEDAKER, D.D.S., Yonkers, New York

DIGEST

With the advent of high speed and ultra speed rotary cutting instruments dentistry has advanced to a phase in which the patient is no longer required to spend long hours in the dental chair. This is a special advantage in the practice of pedodontia. The attention span of a child is short and, therefore, any procedure requiring the child's attention must be short. Utilizing rotary speeds up to 350,000 r.p.m. it is possible to complete quadrant dentistry for children in the time it formerly took for single preparations. This shortened time also makes controlling the child patient much less of a problem for the dentist and a happier patient of the child. The tendency to make inadequate preparations is eliminated and the resulting restorations show marked improvement when the fatigue of long operative procedures is reduced.

Types of Instruments Available

The instruments available at this time for high and ultra speed dentistry are gear driven, belt driven, and the turbines.

Relative Values Described — The relative values of each of these many instruments have been adequately described and evaluated by Kilpatrick.[1] The same values of relative performances would apply in pedodontics with certain modifications.

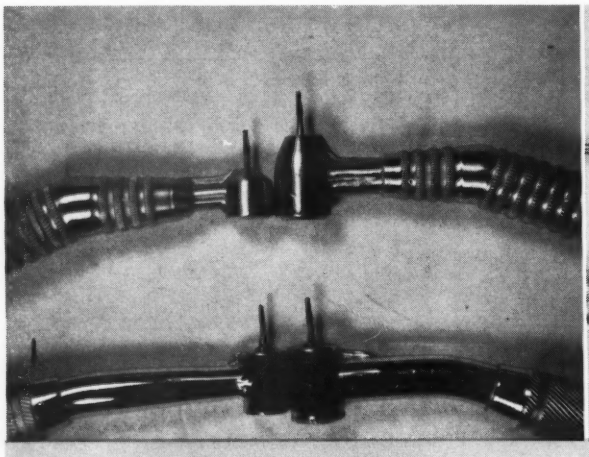
Pedodontic Requirements—The essential factors in pedodontics are size, safety, and ease of operation of the instruments. Other factors which affect the usefulness of an instrument when used with children are noise, vibration, and water spray. These factors are important in adult dentistry but have special connotations for children, due to a child's short attention span and heightened sensibility.

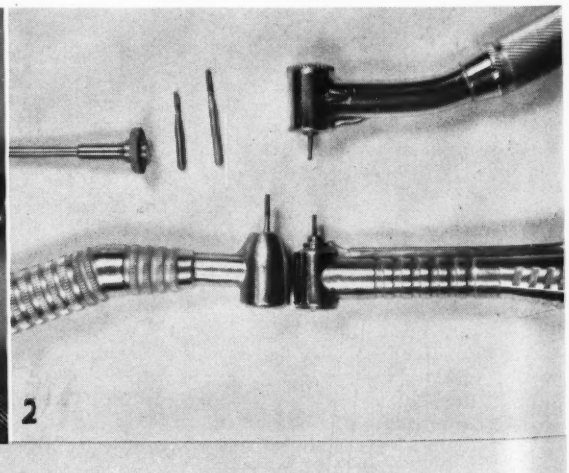
Important Factors to be Considered

The following details may be noted:

1. Size of instrument head and angle of sheath to the head. Frequently a child's mouth is restricted, lessening visibility. An instrument with a large head is a great disadvantage. The angle of the sheath to the head is sometimes too great to allow the instrument to be placed in a child's mouth. The contra-angle head diameter of the various ultra speed instruments show the variation from 10 to 14 thirty-seconds of an inch with most

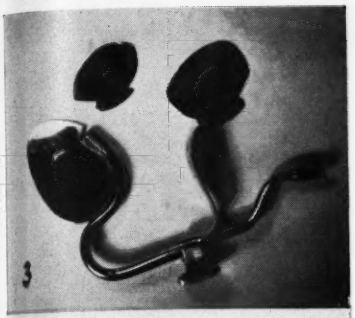
[1]Kilpatrick, H. C.: High Speed and Ultra Speed in Dentistry, Philadelphia and London, W. B. Saunders Company, 1959.





1.
Top left Midwest miniature turbine head contra-angle compared to standard turbine head.
Lower left Densco miniature turbine compared to standard.

2.
Standard size ultraspeed contra-angles with bur shortened by carborundum stone



3.
Svedopter combination tongue guard and saliva ejector.

of the air turbines in the 12 to 13 category.

2. The length of head of the contra-angles which is the more important feature when introducing the instrument intraocclusally shows the variation of instruments from 17½ to 19½ thirty-seconds of an inch. This factor limits an instrument more decisively in a child's mouth than in an adult's. Generally there is less room in the muccobuccal fold in a child than in an adult when necessity requires such placement of the contra-angle for posterior Class V preparations.

3. The new small miniature turbine heads (available from Densco and Midwest) are improvements over the standard sizes. The Densco miniature turbine head will take the regular friction grip burs and shortened shank burs (available from Chayes). The Midwest miniature takes a special smaller diameter shank cutting tool (available from Midwest Manufacturing Company). These miniature turbines have lessened torque; the smaller size cutting tools should, therefore, be used.

4. The length of the contra-angle head with a No. 557 bur shows a variation from 28/32 to 36/32. When a friction grip cutting tool is used a modification of this overall length can be made by cutting off and rounding the end of the cutting tool. The amount of cutting tool protruding from the bur tube can be made short enough to limit the penetration of the cut being made to any safe depth.

5. The latch type burs can also be refashioned to reduce their overall length but this involves more than simply grinding off the end of the shank of the cutting tool. In addition to cutting off the shank a new latch grip must be ground in so the instrument will be retained in the contra-angle. A carborundum stone and disc can be used to fashion the latch type bur shank (available from S. S. White in short latch type).

6. The cutting instruments thus shortened allow only a small portion of the cutting tool to be exposed and will greatly diminish damage if the child should suddenly move or spasmodically close down on the instrument.

Safety of First Importance with Children—The use of high and ultra speed instruments actually decreases the incidence of accidents. This, however, does not mean that great precaution should not be taken. In addition to bur shortening and bur stops there are several other devices which may aid in preventing soft tissue injury:

(1) The Starlite tongue and cheek retractor is useful when working on the lower jaw.

(2) The Svedopter saliva ejector with the tongue guard and mirror is also useful.

4.
Mobile Vac in foreground is the quietest of the high velocity suction to date. The power of the Torit Oravac in background may be varied with a dial.

(3) The Hydroceptor will at times aid in tongue retraction as well as maintain the oral opening.

(4) In addition to these devices the use of high and ultra speed is itself a safety factor because of the reduction of pressure required for cutting.

Water Coolants a Necessity with High and Ultra Speeds — The type, quantity and quality of the spray are of great importance. The type of spray can make the instrument easy or difficult to use. In dealing with a small oral cavity the spray must be directed on the essential cutting area and not indiscriminately sprayed all over the mouth. The spray which comes directly down the shaft of the cutting tool is the one most desired. A warmed spray is more comfortable.

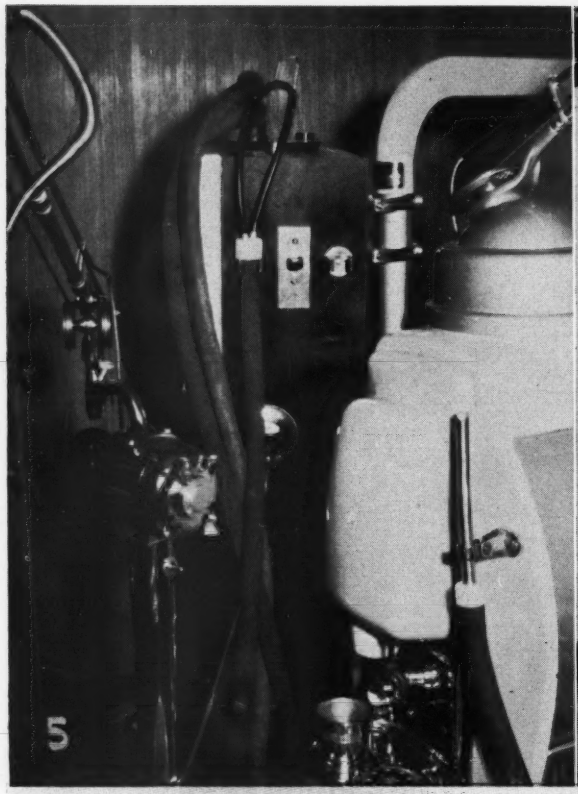
Quality of Spray: This is essential in dissipating functional heat. The spray should be uniform and constant, not permitting the tooth at any time to become overheated.

Quantity of Spray: This should be adequate to dissipate the heat, but should not be so excessive as to cause an overflowing of the mouth or gagging by the patient. A child usually has a sensitive gag reflex and excessive water in the mouth may initiate a reflexing withdrawal or sudden movement.

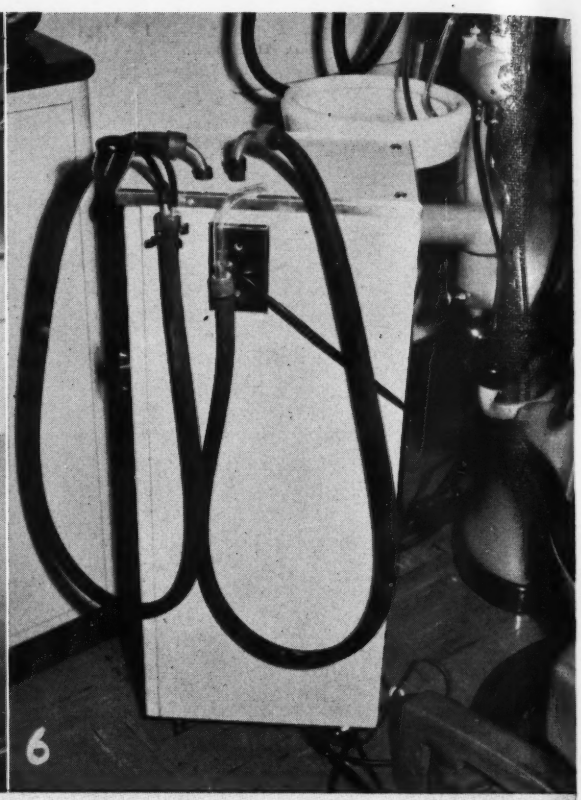
Use of Suction — Water removal when using spray coolants is a valuable if not necessary adjunct to good operative procedure. There are available several types of high velocity suction apparatus on the market at the present time, such as Aspident, Oravac, Pelvac, Vacudent, and Mobile Vac. The basic theory of all these units is the same. The following modifications can be used to add to the efficiency of the evacuating equipment.

1. Small size Vacudent Hydroceptors especially made for children are available.

2. The use of a winged cotton roll holding rubber dam clamp will aid in maintaining the Hydroceptor tubing in place. The tubing can be cut in the looped end and placed on a Garmers cotton roll holder and placed buccally and lingually to the tooth or teeth being prepared.



5.
Vacudent control box. Hydroceptor tubing inserted in one of the tubings.



6.
Aspident high velocity suction. Hydroceptor on left tubing.

3. Contoured saliva ejectors which are placed buccally and lingually and connected to the high velocity suction can be used to remove the coolant fluid and saliva.

4. In small less extensive preparations letting the patient expectorate is sometimes more expedient. This also prevents the new patient from becoming overanxious about too many objects in his mouth at the same time.

Gradual Introduction — Regardless of the type of equipment used, the child patient must first be gently acquainted with the equipment. This is easily done by associating suction machines with known objects such as vacuum cleaners, or turbines sounding like jet planes.

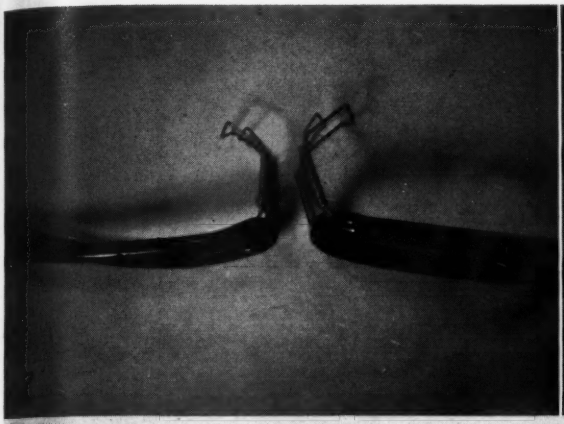
Aids to Visibility

Visibility with water sprays is aided greatly by rapid removal with high velocity suction apparatus, but may also be increased by the use of high detergent solutions as mirror dips (Butler Clear Dip, Hanau Mirror Clear). Warmed sprays do not fog mirrors as much as cold sprays. Air mirrors which either rotate the mirror or simply have an air jet blowing across them will also aid in obtaining clear vision. Turning the contra-angle spray on the mirror is helpful.

Minimum Use of Cutting Tools

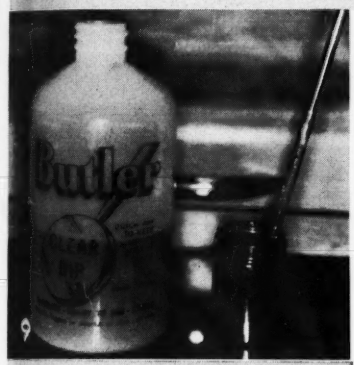
One of the advantages in the use of high and ultra speed rotary instruments is that few different cutting tools are needed. A combination of instruments has been found to be efficient. A regular unit engine can supply power for a Page-Chayes high speed handpiece and a regular straight handpiece with a geared contra-angle. This is accomplished by using a dual engine arm (available from Chayes, and North American Phillips). In addition a turbine can be mounted on the bracket arm of the unit. In this way several cutting instruments may be used interchangeably without the necessity of changing cutting tools.

Unnecessary to Change Instruments —It has been found that if a No. 557 carbide bur is mounted in the turbine, a mounted cylinder diamond stone in the Page-Chayes and a large round bur in the geared contra-angle will allow most routine preparations to be accomplished without changing cutting tools. The cavity outline, box preparation, proximal channeling, and extensions can be prepared using the No. 557 in the turbine. Using the Page-Chayes, the cavosurface area can be made with the cylinder diamond point. Without changing cutting tools, the geared contra-angle with large round bur can be used to remove deep caries. A routine cavity can be com-



7.
Large hydroceptor tubing on right, junior size on left.

8.
Hydroceptor tubing cut and mounted on Garmers cotton roll clamp.



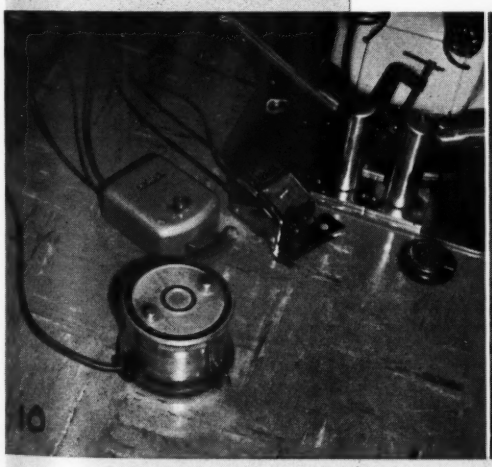
9.
Butler Clear Dip for keeping mirror clear of spray and debris.

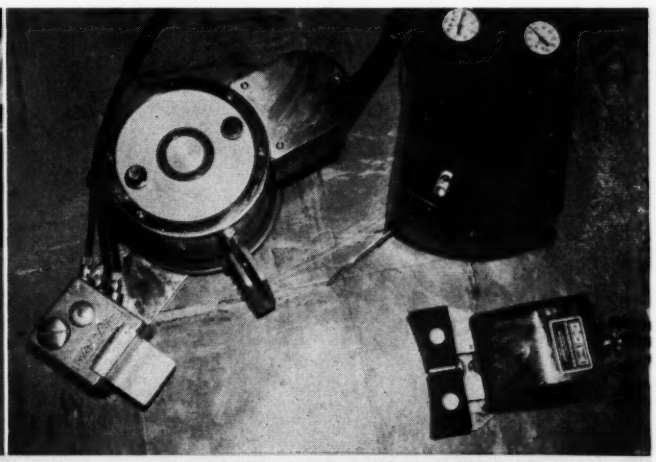
pletely prepared using three instruments and three cutting tools without a stop for cutting tool change.

Combination of Instruments Saves Time — A different combination of cutting tools may be employed but the use of group instrument procedure saves time and eliminates the break in continuity of treatment which occurs when it becomes necessary to change cutting tools. It is not always possible to complete the entire preparation without making a cutting tool change, but whenever it is possible, a great time saving will result.

Special Cutting Tools Obtainable— New bur and diamond types such as the rounded Sockwell burs (available from Premier) are especially designed to give rounded point and line angles to preparations, thus adding strength to the restoration. Other special diamonds with extremely fine grits are available from Rode, Densco, and Star.

Speed Control an Advantage—Variable speed controls have always been of great value in the use of rotary





10.
Lower view is unit control for varying speed of Page-Chayes and medium speed handpiece.
Second from lower is Encore Junior variable air turbine control and top control is Densco Vario-Tek for varying speeds of Densco and other air turbines.

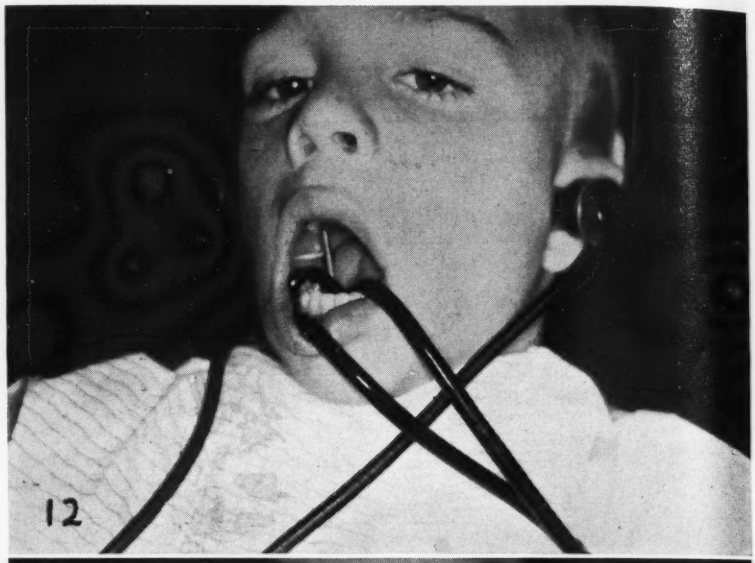
11.
At the left is shown a Midwest variable foot control and chip blower. Ritter Model "J" unit control varies speed of both unit engine and Borden air turbine. The large black control box varies the speed of the Page-Chayes 909. This control can also be coupled with a unit engine and an air turbine. The Densco Vario-Tek on the right can be used to vary another air turbine.

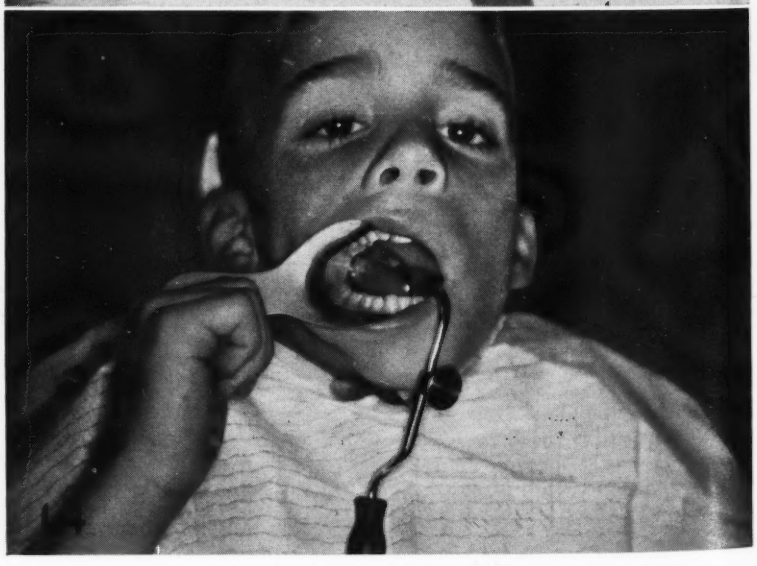
cutting tools especially when delicate tooth removal is required. The variable foot control also allows the operator to start the turbine without the pistol shot whine which may startle the child. Until now only the gear-driven and belt-driven handpieces operated from the unit engine with a rheostat could deliver variable controlled speeds.

Technique for Preparation Of a Class II Cavity

The following steps are taken:

1. Topical anesthesia is applied.
2. Anesthesia is placed in position for the quadrant being treated.
3. Hydroceptor apparatus is placed in position for the quadrant being treated.
4. Air turbine with a No. 557 bur is used with adequate water spray to make cavity outline, box, and proximal channeling. The occlusal surface is prepared first to allow escape of cutting debris. All margins should be extended for prevention.
5. A Page-Chayes handpiece is used with smooth diamond point to extend proximally and occlusally to finish the cavosurface areas.
6. A large round bur in a geared Midwest contra-angle at low speed with air alone is used to remove deep caries.
7. With the hydroceptor still in place the high velocity straight tip may be used with the warm water syringe to flush out completely the entire area, leaving it almost dry.
8. The cavity is given a final examination under optimum conditions and any corrections may be made.
9. The matrix and retainer are placed on the tooth and wedged.
10. The matrix is contoured using

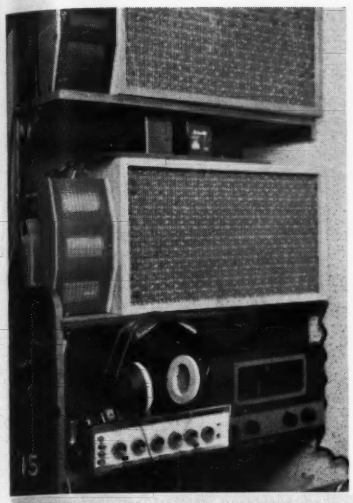




12.
Hydroceptor in place held with spring clip. Small earphones divert the young patient's attention.

13.
Split Hydroceptor tubing held in place with Garmers cotton roll clamp.

14.
Seedopter in place. This device is an effective tongue guard and saliva ejector.



15.
Stereophonic control center for supplying high quality music to patients. This arrangement can play radio, records, or tape through six stereo speakers or earphones. It is placed directly behind the patient's head.

a "T" burnisher or similar instrument.

11. Cavity sterilization is accomplished with chloroform and peroxide to remove any oil mist from air turbines which might contaminate the restoration.

12. Cavity lining of calcium hydroxide in one of many vehicles such as methyl cellulose, acrylic resin, or zinc oxyphosphate is placed.

13. The cavity margins are scraped, using enamel hatchets and hoes to remove any excess cavity lining.

14. The cavity is ready to restore with amalgam properly mixed and mulled.

15. Condensation of the restoration is accomplished. The matrix is removed and again the mouth can be cleaned by using the straight tip on the high velocity suction. This procedure removes all amalgam scrap from the mouth. It is saved for reclamation.

16. The hydroceptor is removed and occlusal adjustments on the restoration are made.

Psychologic Control and Education of Patient

Any procedure can be made much more pleasant by the use of hi-fidelity music which can be piped directly to the earphones at the chair or played over a speaker placed in the various rooms of the office. Another device is audio analgesia[2] which from preliminary reports shows some promise in controlling patients.

Parental Influence Helpful—In general, treating a child patient is a more complex matter than treating an adult. The problem is two fold: (1) the child possesses his own kind of anxieties and fears, and (2) he also has those of the parent. One is almost as important as the other. Unless the parent is convinced of the value of treatment the child will rarely become a satisfactory patient.

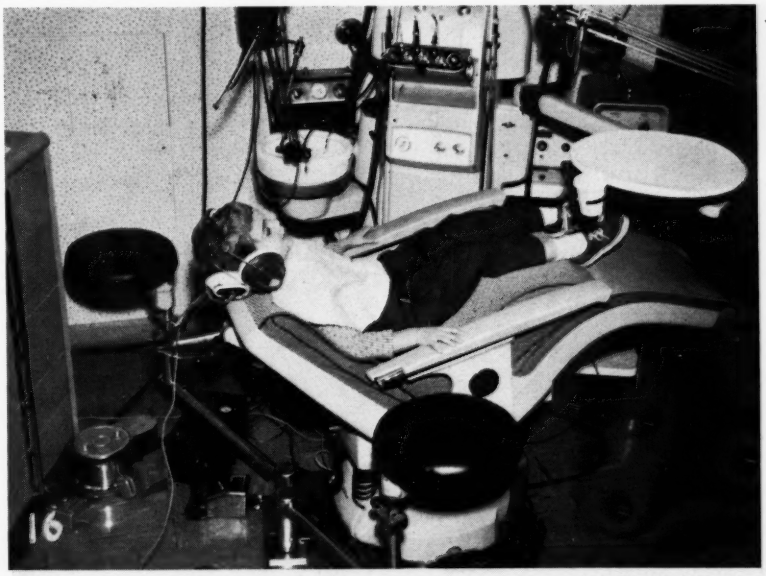
Parent Education Important — When using new high and ultraspeed equipment it is important to convince the parent of its safety, comfort, and less fatiguing properties before beginning on the child. The parent can, if convinced of the benefits of high and ultraspeed equipment, help in preparing a child to accept these new and speedier methods. The parent, once convinced, can in the normal daily contacts with the child, refresh and strengthen the child's confidence established during the first visits.

Uncomplicated Equipment An Advantage—Introducing the child to the high and ultraspeed equipment is a relatively easy task because of the general simplicity of the equipment. The sound and water spray are the most important factors to be explained since they are the most outstanding subjective annoyance factors. The various subjective features of the equipment can be related to familiar objects with which the child is acquainted.

[2]Gardner, Wallace: Personal Communication.

Conclusions

1. High and ultraspeed equipment



16.
High, ultraspeed, and auxiliary equipment. Small patients are comfortable on an insert placed in a Ritter Euphorian chair. This position discourages slumping and other movements that children are constantly making. Stereo earphones help control the small patient. The operator and assistant can sit down using Castle T and M twin stools. The Ritter Model "J" unit incorporates an air turbine and supplies power for a Page-Chayes and low speed handpiece on a dual engine arm. Two other air turbines are available. A Midwest Air Drive is mounted on the wall and a Densco Aero Turbex under the cuspidor. A Page-Chayes 909 single belt ultraspeed contra-angle powered by its own motor and foot control is mounted on the bracket table arm. This arrangement allows the operator five ultraspeed and one low speed handpieces at his disposal. Auxiliary cabinet is shown which affords an instrument source for operator and assistant while seated.

lends itself to all pedodontic procedures. The small size, increased safety speed of operations, lack of vibrations, all make pedodontic procedures easier for both patient and operator.

2. Because of its newness and relative freedom from irritating factors high and ultraspeed equipment provide an opportunity to reintroduce both child and parent to a new phase of dentistry.

3. The child may become a better patient if the parent is convinced of the benefits of the high and ultraspeed procedures.

4. As in general dentistry, pedodontics should be greatly benefited by the utilization of high and ultraspeed rotary instruments in conjunction with the various pieces of auxiliary equipment.

Yonkers Professional Building
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Treatment of Staphylococcal Infection

General Principles of Treatment

The following basic principles should be considered in treatment:

(1) Staphylococci produce rapid focal necrosis of tissues. Short delays in appropriate therapy may allow reversible infection to become a chronic suppurative process that responds slowly, if at all, to antimicrobial therapy.

(2) Staphylococci residing in abscess cavities are virtually insusceptible to antimicrobial drugs. It has been shown experimentally that this is not due to lack of drug penetration, but it appears to be related to the sluggish metabolism of large populations of microbes residing in pus. Thus, surgical drainage of local necrotic lesions is of major—indeed, often of primary—importance in therapy.

(3) Staphylococci tend to perist in tissues and are killed slowly by the best of antimicrobial programs. They are probably never eradicated from the tissues by drugs alone. Relapses are common. Consequently, antimicrobial therapy must be intense and prolonged.

(4) Although treatment must often be initiated on the basis of past experience with staphylococcal strains prevalent in the community, rational therapy requires that one *know* the antibiotic sensitivity of the specific strain under treatment. Thus, in vitro studies on the antimicrobial susceptibility of the infecting staphylococcus are of great importance in management, particularly if alterations in treatment become necessary.

Adapted from *New England Journal of Medicine* **261**:86 (July 9) 1959.

An Invitation to Contributors:

Since 1894 when DENTAL DIGEST was founded the pages of this journal have been open to articles contributed by dentists throughout the world, The emphasis has been, and will continue to be, on the publication of articles on all phases of clinical practice.

DENTAL DIGEST encourages the use of many illustrations to show techniques. We prefer that the text be short and that step-by-step technical procedures be presented as an illustrated "clinic on paper."

A booklet, *Suggestions to Authors,* has been prepared by the editorial staff and will be sent free on request.

Why publish? Any dentist who has developed a technique, refined a procedure, or has made a significant clinical observation has the opportunity to record these advancements and elevate his professional standing by making a contribution to the literature.

* * *

For all illustrated articles that appear in DENTAL DIGEST the author will receive an honorarium of $50 to help defray his expense in preparing the photography or drawings.

Contributors are invited to send their articles to:

Edward J. Ryan, D.D.S.
Editor, DENTAL DIGEST
708 Church Street
Evanston, Illinois

Clinical Applications of OCCLUSION *and* ARTICULATION—

Part Eight

LEO STOLL, D.D.S., Woodmere, Long Island, New York

DIGEST

This is the eighth and final installment of a series of articles in which the author has proceeded from broad theoretic considerations in occlusion and articulation to definite applications of the methods described. In this concluding installment additional clinical uses to be desired as well as treatment-planning and patient education are discussed.

Additional Clinical Applications of Procedure

The method and techniques for using maxillomandibular relations determined on the articulator with bite records obtained from the patient, as a substitute for the mandibular movements of the patient, for establishing balanced occlusion of the teeth which will be in harmony with the articulations of the patient's jaws, as applied to the construction of full dentures have been demonstrated.

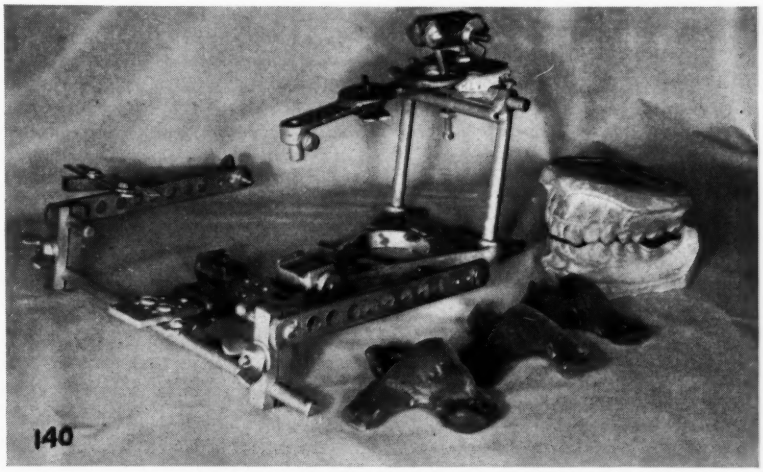
The same methods and associated techniques, with any necessary variations, can be used for other clinical purposes.

Relationships More Easily Evaluated on Articulator — In the manner described, the occlusion of the teeth of natural dentures and its harmony to the articulations of the jaws can be inspected, studied, and evaluated more easily and accurately with the casts properly mounted on the articulator than in the usual manner directly in the patient's mouth.

Corrections in Occlusion may First be Executed on Casts — Corrections required for balancing the occlusion can first be executed on the casts and then duplicated on the teeth of the patient. The procedures carried out this way are systematic and eliminate the guesswork and other difficulties usually associated with this process.

Simplicity of Method an Advantage — For procedures concerned with complete occlusal rehabilitation, requiring a repositioning of the mandible for altering the maxillomandibular centric relation, the simplicity of the method and associated techniques is of particular value. The required changes of the maxillomandibular relations of the casts mounted in the articulator can be easily and quickly made without the usual remounting of the casts. In addition, valuable articulator records, keys, can be made to record any of the relations for possible future reference or reproduction, a feature not possible on any other articulator. Preoperative and postoperative views of practical cases requiring extensive occlusal rehabilitation and alteration of the patient's existing centric relation which were executed with the method and techniques which have been described are shown in Figures 141 to 146.

Valuable in Orthodontics — The method can be used to advantage in orthodontics as a diagnostic aid for the study, evaluation, and treatment planning for contemplated changes in occlusion and articulation. It offers a far superior clinical means for accomplishing this than the customary relating of the patient's casts haphazardly held by hand. A careful anlysis of the relationship of the occlusion with respect to the articulation can



140.
The articulator, the mandibular hinge-axis relator, and its record, the patient's casts, and the necessary variety of bite records obtained from the patient. These are all the essentials required for the study, diagnosis, and treatment-planning for procedures concerned with balancing the occlusion of the natural dentures of a patient.

141, A, B, and C.
Casts of a severe Class II malocclusion in an elderly patient requiring extensive complete occlusal rehabilitation and alteration in the existing centric relation.

142, A, B, and C.
Casts of the case shown in Figure 141 after the necessary occlusal rehabilitation and alteration of the centric relation was completed.

143, A, B, and C.
Casts of a severe Class III type of malocclusion requiring extensive complete occlusal rehabilitation and alteration in the existing incorrect habitual centric relation resulting from occlusal interferences of the opposing anterior teeth.

only be done with an articulator. For orthodontic procedures concerned with repositioning the mandible, the method is simply applied.

Patient Education and Treatment-Planning — From the standpoint of practice administration, the articulator is useful for mounting casts of a patient's teeth which can then be used for discussing with the patient his particular dental problem and the treatment required for rehabilitation. The value of this procedure should not be underestimated. It could mean the difference between acceptance or rejection of necessary therapy to the patient.

Summary

Balanced occlusion of the teeth which is in harmony with the articulation of the jaws is considered to be essential for the normal physiology of a patient's masticatory apparatus. The following factors involved were discussed or described:

1. Theoretic considerations were stated concerning the mechanics of the masticatory machine and the mechanism of the constrained movements of the mandible relative to the skull, as regulated by the temporomandibular articulations.

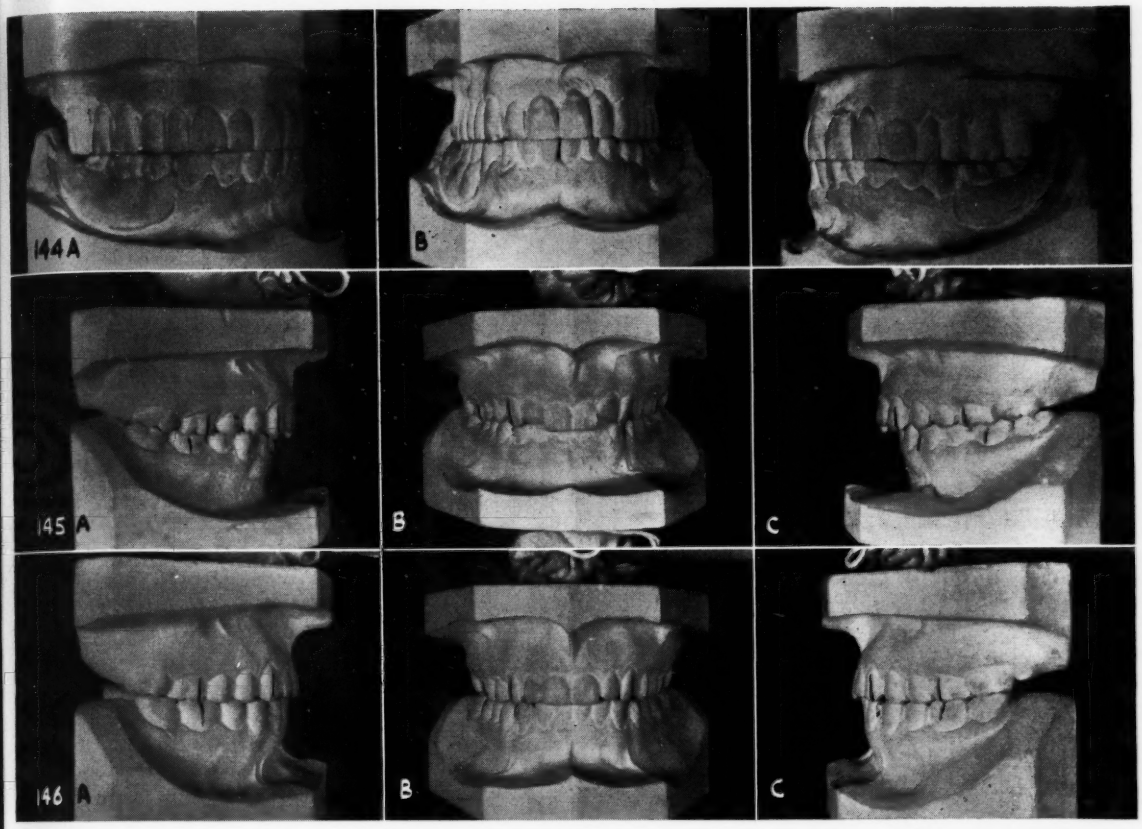
2. A simple and efficient method was described for using a variety of maxillomandibular relations as an effective substitute for the mandibular movements of a patient for the study, diagnosis, treatment-planning, and execution of any clinical procedures concerned with balanced occlusion which is in harmony with the articulations of a patient's jaws.

3. An articulator was devised for releasably securing any of a universal variety of maxillomandibular relations of mounted casts or appliances, as determined with interocclusal wax bite records obtained from the patient for duplicating any of a variety of essential recorded maxillomandibular relations of the patient.

4. A method for making and using articulator records, or keys, to serve as mechanical substitutes for the bite records used for relating the casts or appliances mounted on the articulator was discussed.

5. An improved technique for making interocclusal wax bite records, descriptively called three-point bite records, was presented.

6. A simple easily adjustable device, called a relator, originated by the author, for recording the relation of the mandibular hinge-axis is described.



144, A, B, and C.
Casts of the case shown in Figure 143 after the necessary occlusal rehabilitation and alteration of the centric relation was completed. The vertical dimension was increased and the mandible was permitted to assume and maintain its correct centric relation.

145, A, B, and C.
Casts of a severe Class II malocclusion of an adult patient requiring complete occlusal rehabilitation and alteration of the existing centric relation for the relief from symptoms of a severe temperomandibular disturbance of many years' duration.

146, A, B, and C.
Casts of the case shown in Figure 145 after the necessary occlusal rehabilitation and alteration of the centric relation was completed. The vertical dimension was increased and the mandible was repositioned considerably in a protrusive (forward) direction to the extent indicated by the lines scribed on the casts. The symptoms of the temporomandibular disturbance were completely relieved and have not returned during the 20 years since this case was completed.

7. The clinical application of the method described for establishing balanced occlusion of the teeth of artificial full dentures which is in harmony with the articulations of the jaws of a patient was outlined.

8. Other clinical applications were discussed and shown.

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Procedure in Modeling

Compound FULL IMPRESSIONS

THEODORE P. FUHRER, D.D.S., Scranton, Pennsylvania

DIGEST

This illustrated article presents a step-by-step technique for taking full impressions using modeling compound. If the steps are completed carefully an impression will be obtained that is without distortion and that possesses stability and adhesion.

Technique

Upper Snap Impression—The impression should have enough detail to show muscle attachments, ridge area, and tuberosities. The posterior portion should show the curve of the soft palate against the posterior border of the impression. The following steps should be taken:

(1) Heat the compound until it is as soft as the ordinary mix of alginate. If a thermometer is used the water should be heated to 132 to 138 degrees Fahrenheit.

(2) To be sure the compound is not overheated, touch the material to the underside of the forearm to test it.

(3) With the tray in the mouth slightly muscle trim both sides by pulling the cheek down and forward. Have the patient pull his lip down to trim the anterior border.

(4) Hold the patient's nose and ask him to blow air through his nose. This maneuver will bring the posterior soft palate in firm contact with the posterior border of the impression and provide a definite indication of the type of soft palate involved and the proper posterior border.

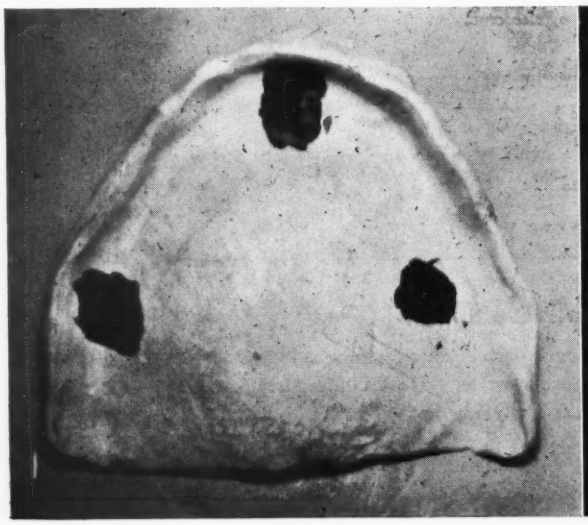
Study Model—The case is outlined for a custom-made tray. The periphery is about a quarter of an inch short of the desired finished border. Stops can be placed on the first molar regions and the central regions if desired.

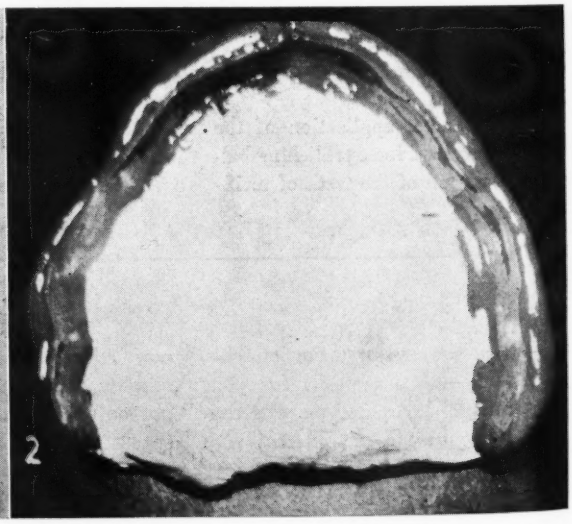
Custom-Made Tray—Any fast curing tray material with stops may be used. The tray is rounded and trimmed to the previously planned border. The handle is optional (Fig. 1). The following steps may be completed:

(1) Cover the prepared tray as evenly as possible with about an eighth of an inch of red compound (Kerr's).

(2) Anneal in hot water (132 to 138 degrees Fahrenheit) until the proper consistency is obtained, tested in the manner described, and place in the mouth with firm pressure.

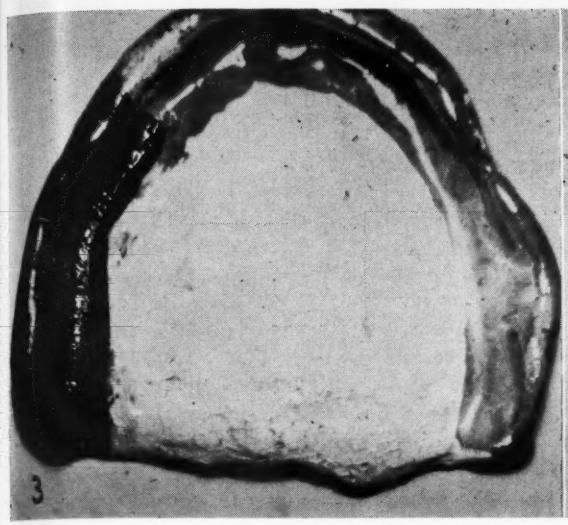
(3) On removing the impression examine it to see that it has no imperfections or areas where compound has not come in contact with tissue. Correction may be made by applying a

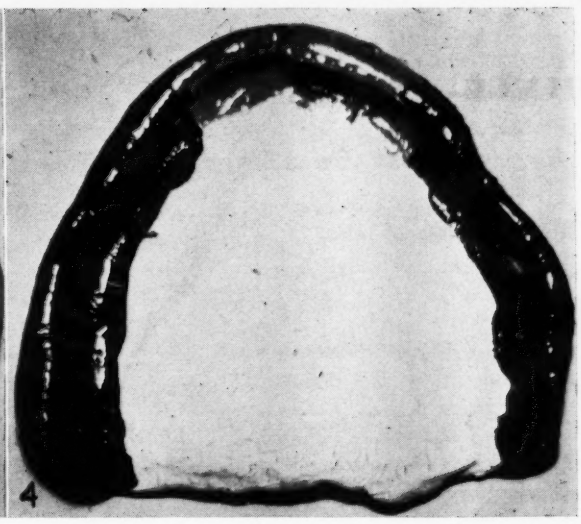




1.
Custom-designed acrylic tray with stops, trimmed to previously determined outline, that is, one-fourth inch short of finished line of the denture. (Handle is optional.)

2.
Primary impression.





3.
Left side muscle trimmed

4.
Right side muscle trimmed.

small dab of green stick compound softened in a flame or by a small compound blow torch.

(4) Return to the mouth and make the needed corrections. When satisfied with the palatal area proceed with the periphery (Fig. 2).

Method to Trim Periphery

(1) Beginning on either side, place green stick compound (Kerr's), heated in the flame, over the periphery of the tray at the posterior border of the hamular notch and extend to the cuspid area of the side.

(2) The tray is inserted into the mouth and the cheek is deflected down, forward, and back while the fingers maintain firm pressure on the palatal areas of the impression (Fig. 3).

(3) The opposite side is trimmed in the same manner. Keep in mind that wherever the muscle trim is not correct the area can be added to or cut away as required (Fig. 4).

(4) The anterior border from cuspid to cuspid is treated in the same manner. Muscle trim, making sure the frenum of the lip is free to move without impingement.

(5) To postdam extend green stick compound across the posterior palatal border, heat with the torch, dip in water, place in the mouth, and hold with pressure.

(6) Have the patient blow air through the nose as described previously (Fig. 5).

Comment

If the steps are carried out correctly an impression will result that has stability and resistance to dislodgment. If the patient can dislodge the impression look for some muscle impingement or to defects in the periphery of the impression. This impression can be refitted and retried as many times as wished without fear of distortion. This is one of the most valuable features of this technique. The end product will be an impression that will produce a denture that is properly muscle trimmed and will require little adjusting.

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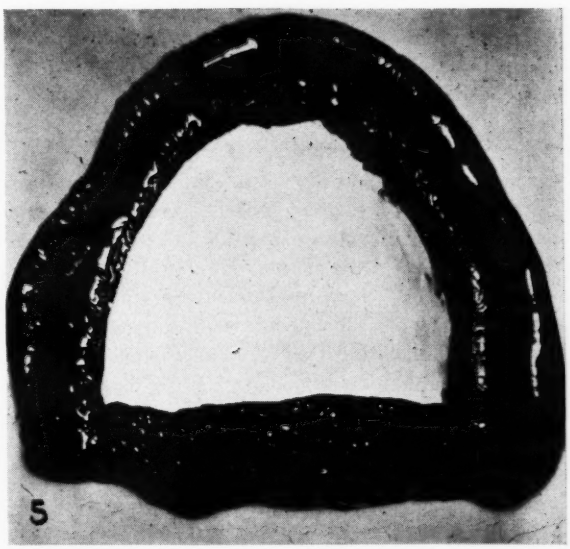


5.
Anterior region muscle trimmed, postdam created, and impression completed.

HINGE-AXES:

Arguments and Typical Examples: Proof

Part One

HARRY L. PAGE, Valparaiso, Indiana

DIGEST

The subject of the temporomandibular joint hinge-axes has been a controversial one for more than thirty years. This article, which is the first of two, indicates the futility of the typical arguments both for and counter to the popular concepts in the subject.

Introduction of Concept

In 1926, Beverly B. McCollum[1] introduced to dentistry the idea of adapting the universally known control center or axis of revolving bodies to the temporomandibular joint. This he called the "hinge-axis." In the more than thirty years since then his hinge-axis concept has passed through consecutive eras of stolid indifference, ridicule, curiosity, and heated controversy.

Concept Challenged—Operators and "study clubs" have recently conducted what, to them, is "research" to prove or disprove that such a thing as a hinge-axis exists in the temporomandibular joint. Few of these experiments or conclusions have logical bases. Most are either rationalizations of predetermined wishful decisions or are procedures having no real significance. They indicate little knowledge of the elemental mechanics involved and none at all of joint and jaw physiology.

Fear of the Unconventional—There is evidence that much of the antagonism to the hinge-axis concept stems from a subconscious resistance to the unfamiliar; what McCollum[2] called "Fear of more and newer knowledge . . . ." Antagonism is a useful defense for the poorly informed critic. To those who regard any subject entailing unconventional ideas as a menace to their prestige, it is the perfect alibi for nonacceptance.

Experimentation Unnecessary—There has never been any need for experiments to prove or disprove the existence of temporomandibular joint hinge-axes; it has been a mechanical axiom for centuries that *any* rotating body with a bearing against another surface does so around some form of rotational center. A perfect sphere, bearing against a perfect socket or a constant point, rotates around a center point in the sphere in any one or in all three planes simultaneously. A perfect cylinder, bearing against a symmetrical surface, rotates around a single-line axis in one plane. The same applies to a wheel.

Description

A condyle is an irregular body bearing against a slightly irregular surface while rotating around the joint hinge-axes. Therefore, the hinge-axes are not absolutely and scientifically constant. But, through approximately twelve to fifteen degrees of rotation (depending upon the case) the transverse axes remain so near to constancy that for practical purposes they may be considered unchanged. Twelve degrees of rotation means that the molar teeth are parted at least eleven millimeters vertically (the incisors, about twenty millimeters), a separation that is more than ample for function and for proper shaping of the occlusals in articulation.

Teaching Scope Limited—It is an unfortunate result of methods of training used in dental schools and in postgraduate clinics that students acquire little ability or incentive to make the most of their mental capacity. They are not taught to reason far enough to include the contributory factors that can, and often do, either nullify on one hand or make possible on the other whatever value an operative method may have. Although it may be but one among several processes all fraught with possibilities for good or ill, a specific "technique" is generally credited with success or blamed for failure as the case may be.

Example Cited—When a given edentulous impression technique is used but the completed case proves unsatisfactory, it is the impression technique that is condemned. Indisputable proof that it may have provided a solid and retentive denture base seldom registers. That this is all an impression technique is supposed to or can contribute to the case is ignored. Lip service may be rendered to the importance of articulation and to its part in the success or failure of the case but a new impression technique will most certainly be sought without delay; tacit admission that the impression technique is held wholly responsible.

Confusion Increased—Training needed to recognize, isolate, and analyze the importance of contributory factors in controversies over hinge-axes is lacking. Researchers, muddling in unfamiliar fields or using methods and equipment that render

[1]McCollum, Beverly B.: Fundamentals Involved in Prescribing Restorative Dental Remedies, Reprint, 1941 from Dental Items of Interest, June 1939-February 1940 Inclusive, page 10.
[2]McCollom, Beverly B.: Oral Diagnosis, JADA **30**:1233 (August) 1943.

accuracy impossible, blandly announce immaterial and inaccurate conclusions. Published without suitable qualifications, these conclusions increase a confusion already pandemic. There is no difficulty in finding current examples; dental literature is replete with them.

Electromyographic Experiment

Woelfel, Hickey, and Rinear[3] in concluding a report on an experiment, state: "It has been demonstrated electromyographically that the hinge opening can be accomplished when a trained subject makes this type of opening, since no increase of electrical activity is recorded from normally functioning external pterygoid muscles." In conclusion they state, "However, for most individuals this is not the normal opening pattern."

Opening Stroke Emphasized—Their entire article is concentrated upon determining electromyographically whether the external pterygoids and the motor nerves will permit fixed transverse axes on the *opening* stroke of the mandible. References to other authors, pro and con, are mainly limited to those who have treated the question of hinge-axes on the opening stroke. The amount of mandibular opening that takes place without forcing the condyles into translational motion is prominently discussed. Nowhere is there any connection with or even mention of the all-important closing stroke or of normal function.

Unsolved Problem—There is no objection to an academic exposition showing what a "trained subject" can be made to do with his jaw while parting his teeth if the authors are intrigued by such a project.

There is no doubt that the electromyographic records were expertly and carefully done. There is, of course, the still unsolved problem in reading electromyograms; namely, do such recordings indicate isotonic or isometric muscle action? The authors acknowledged this.

Known Facts Repeated—Neat and well-executed though this experiment undoubtedly was, it still offers nothing but what has long been common knowledge to all astute hinge-axes users; it has no theoretic significance and is without practical value.

False Conclusion Possible—However, the inclusion of such unqualified statements as that the patient is a "trained subject" and that ". . . this is not the normal opening pattern" carry unfortunate inferences. Impressionable and uninitiated readers will conclude that while there probably are such things as hinge-axes, patients never use them so the whole idea may as well be dismissed.

Opening Axis of Small Concern—Certainly, the authors should know that traumatic collisions between opposing teeth do not occur on the opening stroke. Chewing is not done on the opening stroke. Hinge-axes are never used by the jaw in a functional opening stroke. Cusps need not be, and when fashioned correctly, never are formed to accommodate an opening stroke. Consequently, well-informed students of articulation who are familiar with temporomandibular joint physiology and jaw function have little concern over an "opening axis." They are properly engrossed in studying *closing axes.*

Hinge-Closure Important Stroke—It is on the closing stroke that a subject chews his food. It is on the closing stroke that the teeth risk traumatic collision. What dentistry needs to know is whether a subject's jaw can accomplish hinge *closure.* It is unnecessary to add that it is also necessary to know whether the subject's jaw accomplishes hinge closure *naturally;* that is, without being "trained."

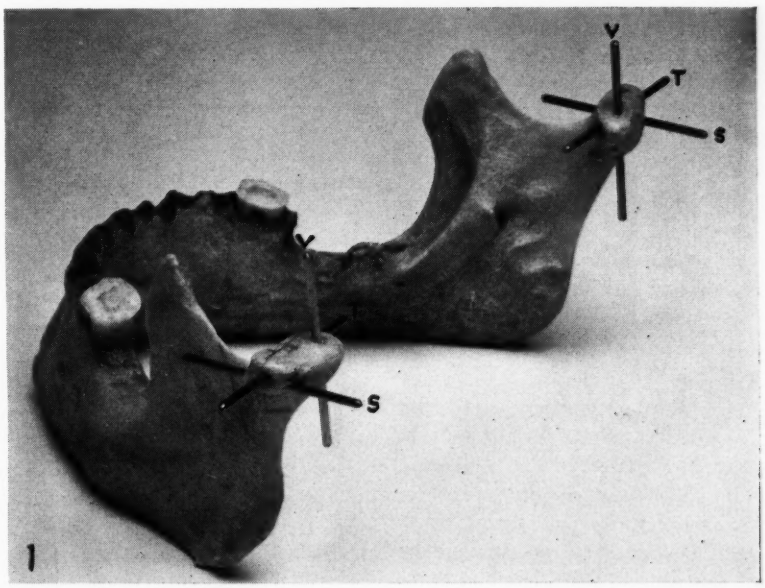
Functional Controls of Jaw

Strong evidence that the functioning jaw can and does accomplish natural hinge closure has been available to dentistry for over a quarter of a century. Conclusive proof was finally demonstrated and was later published[4] in September, 1951. Since then, the same proof has been repeated by others until it has become tiresome. In February, 1954, it was further explained[5] and illustrated how one condyle (the working condyle) assumes control of closing function upon taking the fixed hinge position in its fossa while the other condyle (the nonworking condyle) releases

[3]Woelfel, Julian B.; Hickey, Judson C.; and Rinear, Lloyd: Electromyographic Evidence Supporting the Mandibular Hinge Axis Theory, J. Pros. Dent. **7**:367 (May) 1957.

[4]Page, Harry L.: The Bennett Movement, DENTAL DIGEST **57**:413-414 (Sept.) 1951.

[5]Page, Harry L.: Temporomandibular Joint Physiology and Jaw Synergy, DENTAL DIGEST **60**:56 (February) 1954.



1.
Three intracondylar axes in each temporomandibular joint: T, transverse axis; V, vertical axis; S, sagittal axis.

control and operates as the mobile part of a universal joint for protection of the temporomandibular joint and the teeth.

Terminal Functional Orbit—In short, alert dentists have known for several years that the jaw in closing through the range of interdentation (what Messerman[6] aptly called "the terminal functional orbit") arcs naturally around three nonintersecting axes (transverse, vertical, and sagittal, Fig. 1) in the *working* joint.

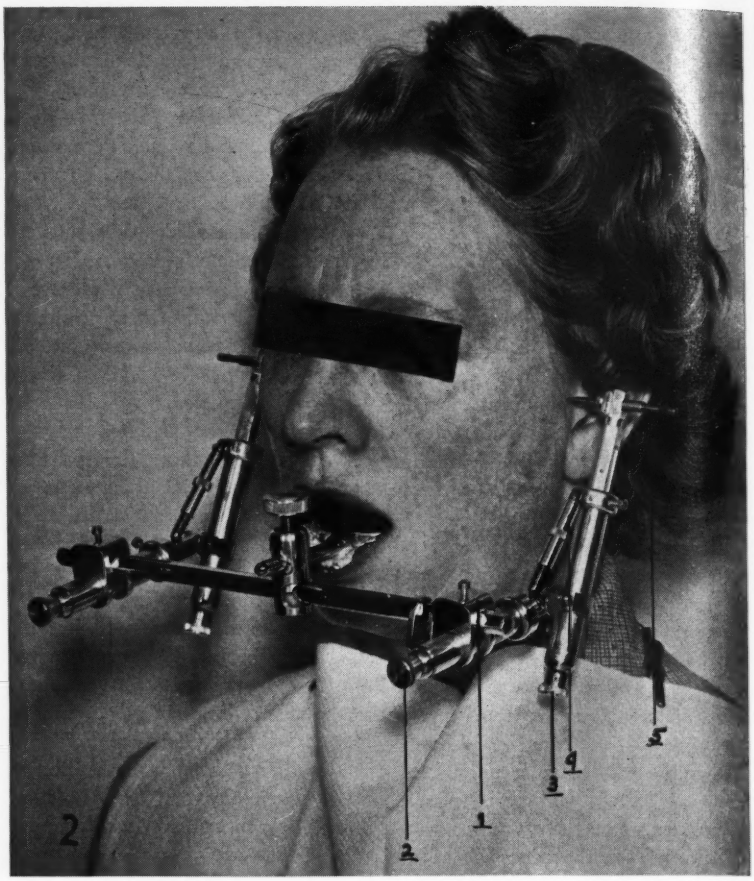
Duplication of Natural Function—Since January, 1952, when the first Transograph went into general use, capture and mechanical duplication of hinge closure in natural function have become routine and casual procedures in progressive offices everywhere. If there are any articulation teachers who do not know that this is being done or who still argue that function cannot be duplicated mechanically, it is because they have refused the opportunity of being shown or do not want to be shown.

Issue Confused

An instance in which methods and equipment stultified the researcher's results is that of Schallhorn.[7] Sponsored by several of his instructors and with the endorsement of his dental school, he entered into competition and won the American Denture Society's annual (1956) prize for senior dental students.

Intention of Study—This research was intended to show whether transverse hinge-axes as recorded kinematically by opening and closing jaw movements were of any greater practical value than an arbitrary face-bow registration and transfer with the condyle rods or calipers positioned "13 millimeters anterior to the tragus." Schallhorn concluded that there was no worthwhile difference because ". . . in over 95 per cent of the subjects . . . the kinematic center lies within a radius of 5 millimeters from the arbitrary center. . . ."

Authorities in Agreement—For the validity of this conclusion, Schallhorn depends upon references to Arstad,[8] and Schuyler.[9] They are seemingly in agreement that, unless the error exceeds 5 millimeters ". . . after a hinge movement of 2 millimeters in the articulator, the molar . . . will . . . contact its antagonist 0.2 millimeters mesial or distal to the intraoral occlusal position. . . ." One-fifth of a millimeter is far from being a "negligible" error in complicated occlusals. The amount of error, however, does not concern us so much as does the attitude. How can dentistry expect esteem as a science when its acknowledged authorities not only condone but publicly advocate such lax practices?



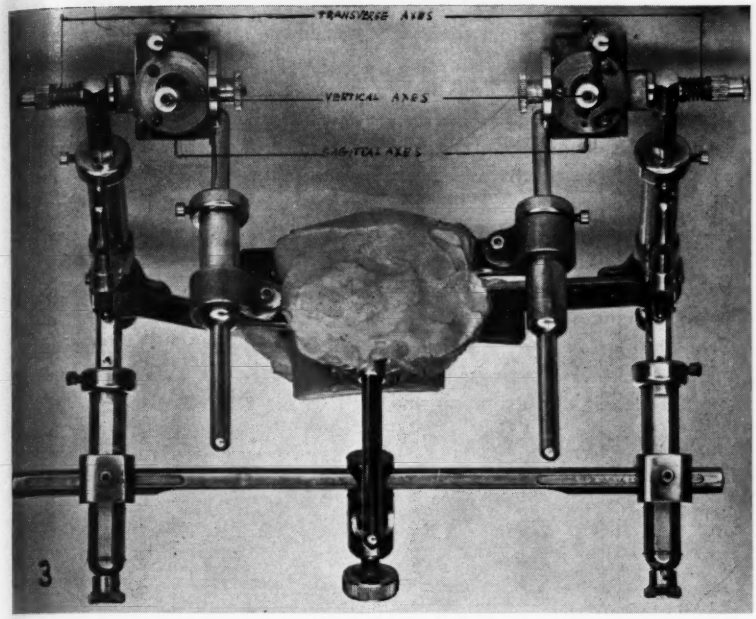
2.
Modern hinge bow with independently adjustable sidearms. (1) Connector (permits gross horizontal adjustments of entire side arm in all directions); (2) Horizontal adjustment screw (telescopes horizontal arm micrometrically); (3) Vertical adjustment screw (telescopes upright micrometrically); (4) Turn buckle (arcs upright arm micrometrically); (5) Hinge indicator pin (adjustable to or from head).

Obsolete Technique—The methods and apparatus used to locate a point "13 millimeters anterior to the tragus" are obviously clumsy and inaccurate but they are standard and in common use. The methods and the apparatus used, however, in the attempt to locate the transverse axes kinematically were entirely obsolete and warrant considerable attention.

(1) A rigid, U-shaped face-bow is attached to a bite fork that, in turn is luted upon the lower occlusals.

(2) From a photograph designated as Figure 5 in the article, the axes indicator pins are at least one-eighth

[6]Messerman, Theodore: Personal communication, 1954.
[7]Schallhorn, Robert G.: A Study of the Arbitrary Center and the Kinematic Center of Rotation for Face-Bow Mountings, J. Pros. Dent. **7**:165-169 (March) 1957.
[8]Arstad, Thor: The Capsular Ligaments of Temporomandibular Joint and Retrusion Facets of the Dentition in Relation to Mandibular Movements, Oslo, 1954.
[9]Schuyler, Clyde: Factors of Occlusion Applicable to Restorative Dentistry, J. Pros. Dent. **2**:633 (July) 1952.



3.
Plan view of Transograph with axes adjusted to correct positions. This view demonstrates that there is no intersection of temporomandibular joint hinge axes.

of an inch thick and are without pointed nibs. They can be arced or slid in ball and socket joints located in the face-bow side arms.

(3) These joints can be released from or locked with the pins in any oblique position desired, thus making the pin tips maneuverable over a wide range.

(4) Attached to the subject's head and adjusted to what Schallhorn considered to be the transverse axes, the indicator pins are seen to be locked in oblique positions decidedly not perpendicular with the face-bow side arms, and not parallel with each other.

(5) The distance from the axis dot on the skin to the respective face-bow side arm where it is crossed by the indicator pin appears to be over an inch. That this distance; this contributory factor, will decide the success or failure of the whole experiment is, obviously, quite unknown to Schallhorn, his sponsors, or the essay judges.

Mechanical Appendage Shown: Through one end of the two-way clamp that connects the face-bow and bite fork and at right angles to the long axis of the clamp, a short, thick rod with enlarged flat, knurled ends is pointed roughly in the direction of a horizontal line drawn across the tip of the subject's nose. Apparently, this rod is just a mechanical appendage used for tightening the clamp and plays no part in the experiment.

Second Horizontal Line Drawn on Chin: Measurements between lines on the nose and chin are used to determine how much the jaw is held open by the bite fork when it is luted upon the lower occlusals.

Patient Instructed to Practice: The author states that the fork opens the teeth ". . . less than 2 millimeters over that in occlusion without the splint." In attempting to locate the transverse axes kinematically, "The patient was instructed to practice opening and closing the mandible in centric relationship through an arc of about 10 millimeters at the incisor region."

Experiment Worthless—It is not necessary to be an expert mathematician or a trained engineer to know that it would be impossible to locate the transverse joint axes accurately with the inept methods and crude apparatus described. Inaccurate location of the transverse axes renders the entire experiment worthless.

Contradiction of Basic Principle—Any apprentice in a mechanical trade knows that an axis is invariably perpendicular to the plane of rotation. In his Figure 5, Schallhorn's obliquely positioned axes indicator pins can be safely estimated to be at least one-sixteenth of an inch off the essential perpendicularity at the skin and about one-quarter of an inch off at the median plane. At the supposed point center in each condyle between which an intercondylar axis would have to be suspended, the error would lie somewhere between these two figures.

Perfect Accuracy Unobtainable—The use of blunt indicator pins and an uncontrolled jaw opening limited to an "arc of about 10 millimeters at the incisor region" when dependent on the imperfect human eye would make even an approach to accuracy in this situation a miracle.

Error Possible Under Perfect Conditions—Working with sharply pointed indicator pins revolving against graph-ruled flags or mirrors to aid detection of pin oscillations and blot out confusing skin movements; and using a controlled jaw opening twice the amount described by Schallhorn, even thoroughly experienced experts admit occasional errors.

Duplication of Axes—McCollum constructed a mechanical head having transverse axes accurately marked on each condyle's lateral surface. With the joints concealed by metal plates, anyone wishing to do so could try his skill at duplicating these axes. Experts did exceedingly well but, even with this perfect mechanism, errors by neophytes such as Schallhorn were common.

Experiment by Expert—Posselt,[10] using a precisely adjusted articulator and "millimeter square-ruled" plates for the pins to revolve against, found himself making frequent errors up to three-quarters of a millimeter. He used jaw openings of 15° and openings that were more than twenty millimeters at the incisors.

[10]Posselt, Ulf; Borch, Olle: Hinge Axis Registration: Experiments on the Articulator, Odontologisk Revy 7, 1956.

Commentary

In the earliest stages of his research, McCollum[11] tried to use the same methods and the same type of equipment used by Schallhorn. His report includes the following statement: "My original methods were crude because I had only a rigid Snow face-bow which had large blunt calipers. . . . These were soon replaced by points but the rigidity of the face-bow still made the application and adjustment of the caliper points an almost impossible task. . . ." McCollum found it necessary to devise a delicately precise hinge bow with side arms independently and micrometrically adjustable before he could obtain accurate recordings. All subsequent hinge bows having any claim to accuracy are similarly designed (Fig. 1A): face-bows such as Schallhorn used were proved worthless more than two decades ago.

Schallhorn used this same article as a reference, but for some reason overlooked McCollum's contribution and comments. It is strange that neither of Schallhorn's professorial sponsors nor the essay judges thought to check his references; if they did they failed to note McCollum's priority of more than a quarter of a century or his conclusions on the same methods and mechanisms used in this prize-winning "research." They did not even notice that McCollum's name was consistently misspelled. No censure can be directed at Schallhorn; he is a product of his teachers and a reflection of his judges.

(End of Part One)

104 *Garfield Avenue*

[11]McCollum, Beverly B.: Fundamentals Involved in Prescribing Restorative Dental Remedies, Reprint, 1941 from Dental Items of Interest, June 1939-February 1940 Inclusive, page 11

Teamwork for Cleft Palates

The surgeon should at the first opportunity give the parents, who may be appalled by their child's deformity, an honest but reassuring outline of the therapeutic plan. Two-thirds of palatal clefts are "complete". involving lip and alveolus; and the stages in these severe cases can broadly be summarised as follows:

1. Repair of the lip and nasal floor is done at 3 months; and repair of the hard and soft palate at 18-24 months.

2. Orthodontic supervision (which should be begun soon after birth) can reach the stage of maxillary expansion at 4-6 years.

3. Speech therapy (if indicated) should also be begun at about this age, but in a good home this task may be supererogatory.

4. Prosthetic treatment often consists in merely replacing an absent lateral incisor; but a few surgical disasters are still seen, and for these (as for the rare cases where primary surgery is impossible) an obturator may sometimes prove startlingly effective in providing clear speech.

5. Finally, secondary surgical adjustments to lip, septum, and nose may be indicated and are usually deferred until the patient is 15 or older.

Adapted from Annotations, *The Lancet* No. **7118**:272 Jan. 30) 1960.

More Speed, Less Haste

Haste the Weakness Of the Tyro

In many operations there is a time for unhurried deliberation and a time for rapidity; the newcomer to surgery should strive to attain not one or the other, but both. Haste is the weakness of the tyro, speed the achievement of the experienced. But the experienced surgeon cannot work at speed throughout a long operation; like an oarsman he learns to take his rest between the strokes. By never forgetting the objective of the operation he makes a direct approach without unnecessary maneuver but with a self-critical study of time and motion. Thus some of the most careful surgeons are also the most rapid; and not a few relieve their inner tension by soliloquy at the same time—a habit Nissen considers retarding. There remains the matter of judgment, of choosing the right moment to change gear: a facility, Fonio tells us, enjoyed by the father of leisurely operating—Kocher himself.

Adapted from Leading Articles, *The Lancet* **7124**:582 (March) 1960.

BUCCAL AMYLASE

as an Anti-Inflammatory Agent

WOODROW S. MONICA, D.M.D., Orange, New Jersey

DIGEST

Physicians have recently found it desirable to control inflammation and minimize pain by the use of proteolytic enzymes. These anti-inflammatory enzymes have proved successful in some measure, but when administered as buccal tablets they have caused mucosal irritation and allergic reactions in a significant number of cases. A buccal enzyme which would effectively control inflammation without side effects would be of distinct value in dentistry and medicine. This article reports the results of a clinical study[4] of a new buccal enzyme—alpha amylase.

Sources of Inflammation

The primary result of a surgical incision in any tissue is inflammation. However skillful the technique, thousands of cells and fibers are severely damaged.[1] Extractions, deep scaling, pulp extirpations, and full crown preparations inevitably produce trauma. The tissue response to trauma is inflammation. Heat, bacteria, abnormal pressure, and even antiseptics may likewise irritate tissue: irritation, in turn causes inflammation.

Impairment of Healing Process

Although inflammation has been considered a part of the physiologic repair process, it can be detrimental to healing.[2] The exudate from an inflammatory site contains a factor (liberated by injured cells) which is damaging or toxic to normal cells.[3] Additionally, the trauma-induced transudation of serum from dilated vessels may impede the capillaries and lymphatics in their reparative activity. Edema and further tissue necrosis follow, to the obvious disadvantage of the healing process. An investigation has been made of a buccal enzyme for the control of inflammation in specific oral situations.

Author's Note: The alpha amylase used in this study was supplied by the Rystan Company, Mount Vernon, New York.

[1]Hartwell, S. W.: The Mechanisms of Healing in Human Wounds, Springfield, Illinois, Charles C Thomas, 1955, p. 33.

[2]Innerfield, I.: Physiological and Clinical Effects of Buccally Given Proteases, JAMA **170**:925 (June 20) 1959.

[3]Menkin, V.: Newer Concepts of Inflammation, Springfield, Illinois, Charles C Thomas, 1950, pp. 82-86.

Description of Material

The test preparation for this study was a buccal tablet containing 10 milligrams alpha amylase, an amylolytic enzyme. The particular type of alpha

1.
Cellulitis caused by abscessed inferior left first molar.

amylase used is produced by a strain of nonpathogenic bacteria. Amylase depolymerizes starches and certain forms are taken internally to aid digestion. This preparation, however, represents the first use of alpha amylase to reduce inflammation, swelling, and pain. If inadvertently swallowed in large doses, it is completely safe. Alpha amylase[4] does not modify the blood or hormonal balance. It is tasteless.

Previous Laboratory Studies

Animal Experiments — Rabbits which had been injected intravenously with trypan blue dye were subjected to a standard skin irritant. Those that received buccal alpha amylase showed a pronounced decrease in capillary permeability when compared to controls.[5]

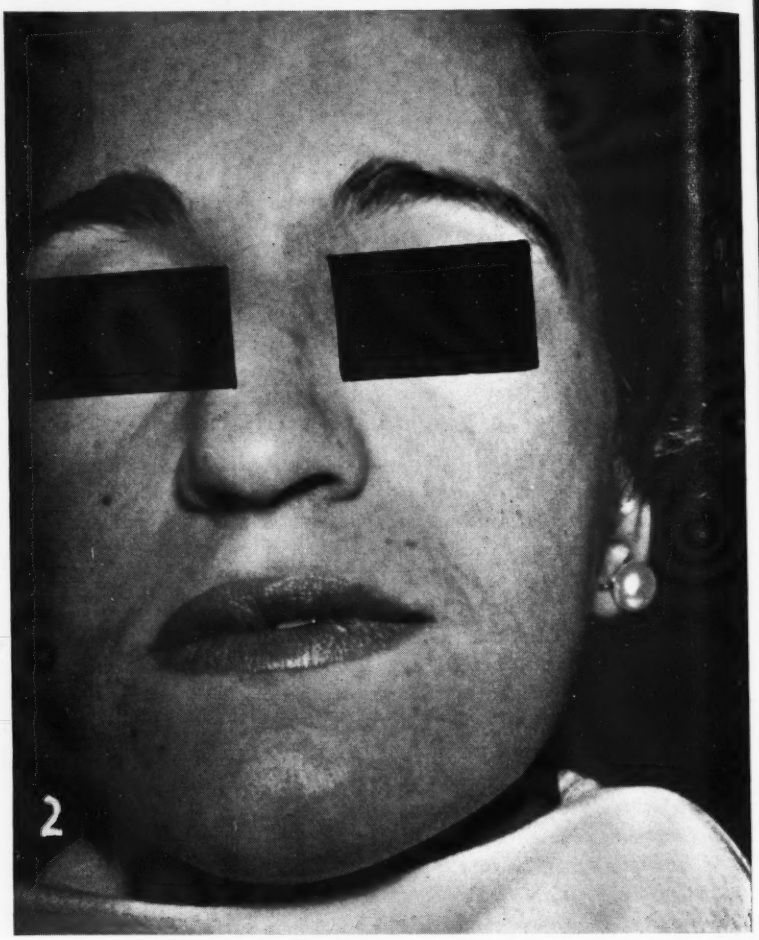
Human Experiments—Blood examinations of 10 healthy adults, before and after using buccal alpha amylase four times daily for three days, showed no change.[6]

Reactions Favorable—Alpha amylase is nontoxic to animals. Intramuscular injections as high as 200 milligram/kilogram in rats and 75 milligram/kilogram in dogs, every day for one month, produced no toxic reactions, no depressed growth curves, no change in food consumption, and no alteration of blood elements.[7]

Clinical Procedures

This study was conducted with patients in personal practice; they were not clinic patients. All were cooperative, intelligent, and capable of effectively reporting their symptoms. The patients, on the whole, served as their own controls because most of them had had similar dental experiences. No thermal packs, mouth rinses, forced fluids, antibiotics, or other adjuvants were used. Critical examinations of the oral tissues plus color photographs formed the major part of the study.

[4]Monica, W. S.: Alpha Amylase as an Anti-Inflammant in Dentistry, Bull. Academy of Medicine of New Jersey **5**:137 (December) 1959.
[5]Davidow, B.: Effect of Buccal Alpha Amylase Tablets on Capillary Permeability, New Drug Institute, July 24, 1959 (unpublished).
[6]Barnard, R. D.: Report from Rockaway Clinic Laboratory, April 21, 1959 (unpublished).
[7]Davidow, B.: One Month Toxicity Studies with Alpha Amylase, New Drug Institute, May 29, 1959 (unpublished).



2.
The patient in Figure I shown 48 hours later after taking alpha amylase four times daily for 2 days.

Method of Application — The following provisions were observed:

(1) Alpha amylase in a 10-milligram buccal tablet was placed in the inferior labial vestibule three times daily between meals and allowed to dissolve slowly.

(2) Only the six patients with cellulitis took an increased dose of alpha amylase.

(3) The tablets were taken for 1 to 7 days postoperatively.

(4) The patients in most instances were examined each postoperative day for at least two days; some were examined for six days.

(5) Serial color photographs were taken of patients with traumatic (denture) ulcers, excessive calculus, pericoronitis, cellulitis, recent extractions, and full crown preparations.

Anesthetic Injections—Primacaine HCI® (with epinephrine 1:60,000) was used for all intraoral anesthetic injections.

Results

Results of the study shown in Table I are reported as clinical observations. There were no control cases, nor was an effort made to evaluate the results in relation to duration of symptoms prior to alpha amylase treatment. The following effects were noted:

Reduction of Discomfort—The most significant clinical effect of alpha amylase was its rapid reduction of inflammation, edema, and pain without a single instance of side reactions.

Postoperative Pain Reduced—Single and multiple extractions were per-

Clinical Results of Buccal Alpha Amylase Therapy

Diagnosis or Clinical Procedure	Number of Patients	Control of Inflammation and Pain			Side Effects
		Excellent	Good	Poor	
Extractions	155	149	5	1	0
Deep Scaling	40	34	6		0
Immediate Denture Insertions	7	7			0
Traumatic Ulcers (Denture)	12		12		0
Cellulitis	6	4	2		0
Endodontic Treatment	10	9		1	0
Full Crown Preparations	12	12			0
Pericoronitis	4		4		0
Totals	246	215	29	2	0

formed on 155 patients. All except one showed no edema, ecchymosis, hematoma, or swelling. None developed dental alveolitis. Most of the patients had no postoperative pain; the remainder, including the one exception, took one or two 5-grain analgesic tablets.

Prompt Improvement of Ulcers—Twelve patients with deep and wide denture ulcers showed good response 24 hours after amylase therapy and denture adjustment. The ulcers were clean and the adjacent tissue less inflamed.

Response in Patients with Cellulitis—Four of six patients with cellulitis showed prompt response. The cellulitis subsided in 72 hours in three patients and 96 hours in the fourth. The acute infections did not rupture spontaneously, nor were they incised. The remaining two patients showed immediate response, but their abscesses ruptured spontaneously. None of the paitents developed ecchymosis. They took no medication other than an increased dose of alpha amylase (one tablet every four hours).

Pain Eliminated After Endodontic Treatment—After pulp extirpations and endodontic treatments of 10 patients, nine had no postoperative pain. One patient responded poorly and was treated later with an antibiotic and alpha amylase.

Relief of Trauma from Full Crown Preparations—The gingivae of 12 patients were severely traumatized during full crown preparations. Later in the day, the patients had little or no pain and 48 hours later the gingivae were not swollen or red. The abraded tissue looked clean.

Comfort Obtained in Pericoronitis—Four patients suffering from moderate periocoronitis of the inferior third molars were more comfortable and could open their mouths more freely 24 hours after taking alpha amylase. The tissue overlying the embedded molars was less edematous and less red.

Comment

When an infected tooth is extracted to eradicate a pathologic source of inflammation, additional inflammation is caused by the destruction of thousands of cells and fibers. Furthermore it is difficult to maintain an aseptic chain in the average dental office and contamination of the wound is inevitable. Although minimal contamination does not necessarily lead to infection of a wound, it frequently does if the natural reparative processes are impaired by severe inflammation. Antibiotics are excellent adjuvants in these cases to combat infection, but inflammation, per se, is not affected. Anti-inflammants such as alpha amylase serve to modify the physiologic response of traumatized tissue in order to avoid infection and hasten repair.

Medication May be Combined—The use of antibiotics was avoided in this study so as to observe the effectiveness of the new anti-inflammatory agent without introducing other influences on the healing process. Both types of medication can be used advantageously in actual practice for the repair of damaged tissue.

Possible Value of Increased Dose—As noted, alpha amylase proved useful in pericoronitis and traumatic denture ulcers, but it is believed that the effect might be heightened in these conditions by increasing the dosage to two tablets four times daily.

Improved Cosmetic Effect—A point worth emphasizing is the cosmetic effect of alpha amylase in the treatment of facial cellulitis. Swelling was so thoroughly reduced in two patients after twenty-four hours that their appearance was again presentable.

Possible Preoperative Use—Alpha amylase, taken preoperatively, may further reduce inflammation and pain. It seems to alleviate hypersensitive teeth by reducing pulpal inflammation. Studies of these possible effects are now in progress.

Summary

Alpha amylase, a new anti-inflammant, was administered to 246 personal patients after a variety of dental operations. Swelling, edema, and redness were absent after 24 hours in 215 of these patients. They suffered little or no pain. Twelve other patients showed a good but less rapid response to the drug. Only one patient suffered postoperative inflammation.

Buccal alpha amylase caused no side effects in any patient treated. Administration of the drug was simple, convenient, and pleasant for the patient.

Alpha amylase was particularly useful cosmetically, in rapidly reducing cellulitis and ecchymosis of the face.

Second National Bank Building
310 *Main Street*

Osteomyelitis of Superior Maxilla

Summary

A review has been presented of 24 cases of osteomyelitis of the superior maxilla in infants treated personally since 1941. This number is surprising, as, so far as can be discovered, only 152 cases have been reported during 100 years. It is possible, therefore, that many cases are not correctly diagnosed.

Staphylococcus aureus is the usual organism found, and when the infection is contracted in a large maternity unit it is usually insensitive to one or more of the antibiotics.

At an early stage of the disease a central abscess cavity develops in the superior maxilla. This can be drained by inserting a polyethylene tube through a cannula which has punctured the lateral nasal wall under the inferior turbinal. By this means antibiotics can be instilled locally. The baby is also given systemic antibiotics.

No incision should be made in the alveolus, or the teeth will be further damaged and incisions around the eyes should be avoided, thus preventing unsightly scars.

From the Proceedings of the Royal Society of Medicine in the *British Medical Journal* **5171**:472 (Feb. 13) 1960.

The Dry Socket Problem

LEON MAJER, D.D.S.

The following local conditions should be provided by the dentist in extraction cases:

1. A clean and prepared mouth.
2. Scaling and preparation of teeth before applying forceps.
3. Use of minimum force to remove teeth from their bony crypt.
4. Careful surgical procedure avoiding undue trauma or risk of infection.
5. Sharp dissection of mucoperiosteum to provide for sufficient exposure and to prevent traumatic retraction of soft tissue and consequent denudement of the bone.
6. Debridement after removal—removal of all sharp spicules.
7. Ensuring the formation of a clot in the socket after extraction.
8. Avoidance of excessive rinsing, smoking, or use of alcohol immediately after the extraction.
9. At least one appointment for postoperative examination.

From *Journal of the Dental Association of South Africa* **12**:253 (July 15) 1957.

Brief Psychiatric Approach for the Clinician

HAROLD WINN, M.D., Philadelphia

Summary

Three areas are to be investigated in the brief psychiatric evaluation: (1) what meaning the disease has to the patient, especially an evaluation of the anxiety associated with the illness, (2) how the patient's symptoms alter his life; and (3) how the patient adjusts to the reality of the therapeutic situation. Every physician realizes the importance of making a comprehensive evaluation in order to understand the complex interrelationships that influence the patient and his disease. Too often the busy physician is forced to neglect a psychiatric evaluation because of its time-consuming nature. This approach will help to obviate the problem.

From *Journal of the American Medical Association* **172**:228 (Jan. 16) 1960.

The EDITOR'S Page

LASZLO SCHWARTZ from a vast experience of reviewing 2500 cases in the Temporomandibular Joint clinic at Columbia-Presbyterian Medical Center, has prepared with the assistance of 18 dental and medical contributors, an important book.[1]

Since 1934 when Costen wrote of a syndrome of "neuralgia and deafness" that was associated with mandibular overclosure there has followed a recurrent wave of dental procedures that were intended to "open the bite and increase the vertical dimension." Many disastrous results have followed such treatment.

In his careful review of the TMJ syndrome Schwartz has struck a conservative note that should appeal to earnest practitioners in every dental field:

"1. The symptoms we found were not those emphasized by Costen, nor did the symptoms comprise the complex described by him.

"2. We were unable to relate symptoms associated with the temporomandibular joint to any 'excessive' range of condylar movement.

"3. We did find in the temporomandibular joint organic disorders common to all joints.

"4. The temporomandibular joint disorder found most often was a pain-dysfunction syndrome—a myofascial pain syndrome.

"5. The pain-dysfunction syndrome often appears first in the form of clicking, subluxation, or dislocation. Incoordination of the mandibular muscles, possibly related to increased muscle tension, is believed responsible for these symptoms.

"6. The incoordination symptoms are often followed by painful limited mandibular movements caused by spasm of some of the masticatory muscles and if such dysfunction is of long duration, contracture of the masticatory muscles with limited though painless mandibular movement may occur.

"7. Whether the spasm of the masticatory muscles follows painful impulses arising in the joint, or whether such impulses arise directly in the muscles themselves, is not known.

"8. No single cause exists for the pain-dysfunction syndrome. A constellation of etiologic factors, including the occlusion of the teeth, seems to be responsible. What the patient does with his occlusion in reacting to stress seems to be more important than any malocclusion that he may have. Malocclusion, by mechanically increasing the amount of force or altering its direction, can make the chance of injury likely. Changing an existing occlusion by either grinding or restorations was frequently associated with the onset of the pain-dysfunction syndrome. In some persons change in proprioception, no matter how slight, seems to be more important than a long-standing malocclusion.

"9. A hypothesis is offered for consideration and trial. This is based on the fact that with stress the tension of skeletal muscle increases, often with clenching or gnashing. When such increased tension occurs in the masticatory muscles for long periods, the following general types of reactions have been observed: the pain-dysfunction syndrome, occlusal wear, tooth mobility, pulp death. As a result of dental treatment the individual response may change.

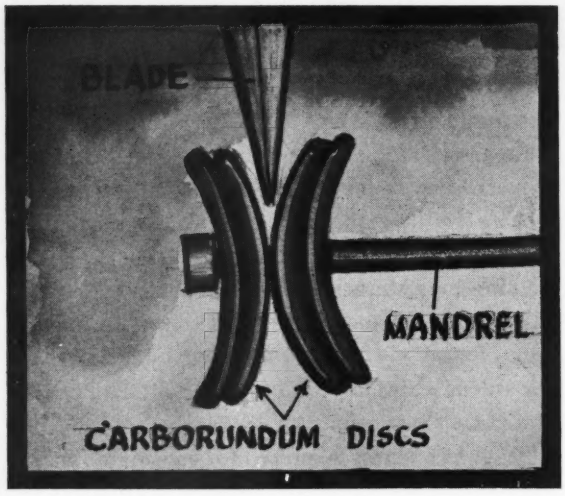
"10. A procedure for the physical examination of the joints, musculature, and the occlusion of the teeth has been developed. Such examination, in addition to broadening the scope of diagnosis, should help standardize our methods of obtaining clinical data. One must be on guard, however, against any geometric evaluation of condyle-fossa relationships, if for no other reason than that a roentgenogram is a distorted static two-dimensional shadow picture of the hard structures of a complex three-dimensional moving joint.

"11. We believe that in the basic biologic sciences and in various specialities of medicine can be found knowledge and techniques which would make the management of temporomandibular joint disorders more effective. More work along these lines should make us less dependent upon altering occlusion in the treatment of temporomandibular joint disorders.

"12. It is our belief that many conditions labeled disorders of the temporomandibular joint can be so considered only if the term 'joint' encompasses, as it must, the musculature."

This summary of the observations made by Schwartz is not a substitute for reading the book. *Every* dentist will find clinical applications in the book that will be pertinent to his particular interests in practice.

[1]Schwartz, Laszlo: Disorders of the Temporomandibular Joint, Philadelphia, W. B. Saunders Company, 1959.



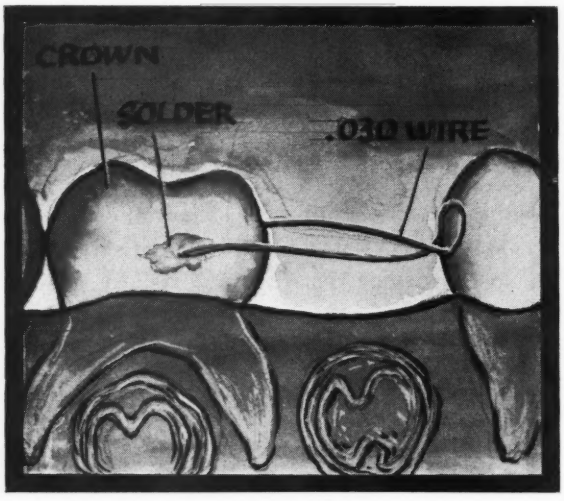
1

Clinical and Laborator

A Knife Sharpener

J. W. Hanson, D.D.S., Spokane, Washington

1. Four convex carborundum stones fastened on a screw-mandrel, as shown in the drawing, make an excellent sharpener for instruments with blades.

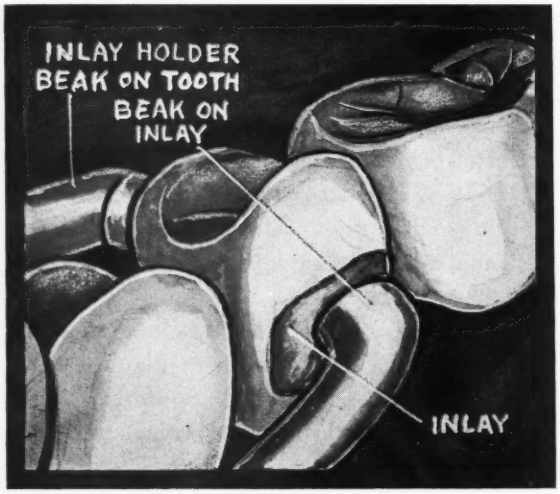


2

A Wire Space Maintainer

Roger J. Nemmers, D.D.S., Dubuque, Iowa

2. When making a wire space maintainer directly in the mouth bend the end of the loop upward so it may be adjusted to fit snugly simply by bending the loop forward or backward. The loop should be spread wide enough to allow the permanent tooth to erupt without interference.



3

Cementation of Class V Inlays

Willard G. Clements, D.D.S., Tinker, Oklahoma

3. To apply constant pressure on a Class V inlay during cementation one beak of the inlay holder should be placed in the inlay, the other on the opposite side of the tooth.

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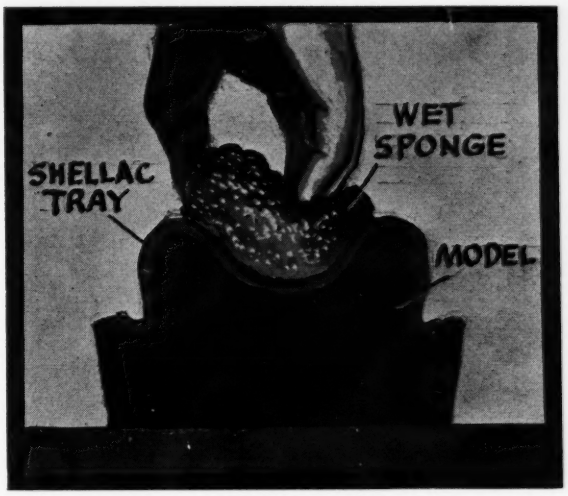
Adapting Shellac Trays

Lawrence Wiland, D.D.S., Flushing, New York

4. Use a wet sponge to adapt a shellac tray to the stone model.

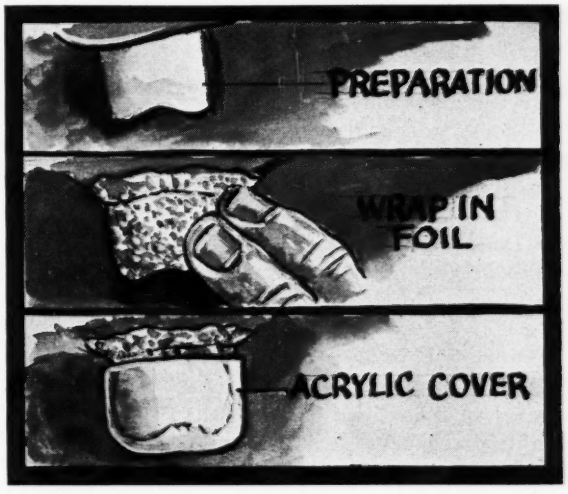


4

Transfer Copings

S. Traunstein, D.D.S., Brooklyn, New York

5. Wrap a piece of tinfoil over the preparation or die and adapt with finger pressure. Apply a mix of fast self-cure acrylic over the foil. When the acrylic is hard trim away the excess.



5

Marking Metal Castings

Bruno B. Kielich, Jr., D.D.S., Buffalo, New York

6. A felt nib marking pen is used to mark areas of interference on the metal parts of prosthetic appliances. After the adjustments have been made the markings are removed with benzol.

6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 387 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois

MEDICINE and the Biologic Sciences

Nonallergic Asthma

Most instances of nonallergic asthma occur after middle life. Many result from recurrent respiratory tract infections.

The diagnosis of asthma is easily made when wheezing respiration is accompanied by dyspnea. Determination of the cause, however, requires an intensive search including laboratory studies, analyses for eosiniphilia, and skin tests.

A rhinologic examination is done to determine the appearance of nasal and pharyngeal membranes. Pale, swollen membranes and a translucent uvula are typical of simple allergic asthma. When asthma is due to both allergy and infection, suppurative or hyperplastic sinus disease will be found.

In infectious asthma lung roentgenograms usually reveal peribronchial thickening and in chronic states, emphysema. Bronchographic examination may show bronchiectasis and narrowing of the bronchi.

With chronic nonallergic asthma, a cardiac component must be considered. Physical examination and electrocardiographic studies are required.

Antibiotics are fundamental to the therapy of acute infectious asthma. Until the results of sensitivity tests are known, a broad-spectrum agent which acts against both gram-positive and gram-negative organisms is employed. Oral therapy is continued five to ten days, until the secretions from the sinuses and the sputum become less purulent. This prevents an acute infection from precipitating asthmatic paroxysms.

With chronic infectious asthma, antibiotic therapy may be prolonged for months or years. The agent must be selected carefully in such cases, with sensitivity tests as guides since the bacterial flora may change.

For status asthmaticus, antibiotics should be injected. Penicillin is most widely used. The hazard of anaphylaxis is reduced by adding an antihistaminic drug to the same syringe.

Antibiotics may be given by aerosol. This method is safe, free from side reactions other than oral and pharyngeal irritation and permits self-administration. Except for slight infectious asthma, however, antibiotic blood levels attained by aerosolization are seldom sufficient.

When asthmatic attacks are no longer amendable to the usual therapy, hydrocortisone or corticotropin may be given by slow intravenous infusion. In patients critically ill with status asthmaticus, the infusions should be accompanied by intramuscular injections of either hormone. Combined hormone and antibiotic therapy is advisable.

Hurwitz, Samuel H.: Nonallergic Asthma, California Med. **83**:61-67 (*July*) 1955.

Anesthesia: Poor Risk Patients

The choice of anesthesia for a poor-risk patient depends on the cause of the reduced physiologic reserve.

Reductions in circulatory reserve may be produced by blood volume disturbances or cardiac disease. Blood volume disturbances result from deficiency of red cells, blood plasma, or serum proteins. Red blood cell loss can be treated only by replacement of red blood cells. The quantity of blood given depends upon the patient's physical condition, serum proteins, and cardiac status.

Patients with reduction in blood volume are best managed with an inhalation anesthetic drug and a high concentration of oxygen. Spinal anesthesia should not be used since paralysis of the vasconstrictor fibers produces vasodilatation and therefore increases the discrepancy between the vascular capacity and blood volume. Pentothal® must be used cautiously.

Patients with cardiac disease who work without disability are not poor risks. Precordial distress, dyspnea, palpitation, and dependent edema may be manifestations of deficient cardiac reserve. Consequently, heart status should be evaluated before surgery. Hypertension, coronary artery disease, myocardial failure, arrhythmia and congenital cardiac disease necessitate careful preoperative management.

Hypertension without associated cardiovascular complications does not increase the risk of anesthesia. Arteriosclerotic changes in the kidneys or brain, associated coronary artery disease, and myocardial damage may impair tolerance for any surgical procedure and actually prohibit spinal anesthesia.

Antihypertensive drug treatment should be discontinued at least two weeks preoperatively because the anesthesia may cause pronounced hypotension and bradycardia due to vagal stimulation. Hypotension and hypoxia must be avoided when anesthetics are given to persons with coronary artery disease.

From three to six months should elapse after acute myocardial infarction before an operation is done. An anesthetic agent should be given to patients with myocardial failure in extreme emergencies only. Heart failure can generally be treated by rapid digitalization before operation. Regional anesthesia is preferred.

Overloading the circulation is avoided by limiting intravenous fluids

(*Continued on page* 385)

and replacing only lost blood. Patients with heart block cannot be benefited by preoperative medication. All patients with reduced circulatory reserve should be connected to the cardioscope in the operating room so that disturbances in cardiac conduction can be recognized immediately.

Reduction in respiratory reserve is caused by respiratory obstruction or disease of respiratory surface. Usually regional anesthesia is preferred. In all cases the reserve should be evaluated preoperatively.

Coakley, Charles S.: Anesthesia for the Poor-Risk Patient, Am. Surgeon 21:800-805 (*September*) 1955.

Corneal Graft

When advising a corneal graft, the degree of handicap that the patient sustains in ordinary life must be considered. The possibility of being able to read may impel some patients to seek operation even though other visual handicaps are relatively slight. Other patients may desire to participate in sports or do clerical work for a living. In some instances, even a small degree of objective improvement may be of a great subjective benefit.

An examination of the eye may reveal densely white or hazy corneal opacities which will account for the patient's defective vision. Even with corneal opacities, however, coexistant disease may contribute to the deficiency. Unless this is taken into consideration, operation may be needlessly performed. Extreme restriction of the field of vision from glaucoma is not infrequent. In patients who had perforated corneal ulcers in infancy, extensive attachment to the iris makes a clear graft difficult to obtain. Elderly patients may have senile macular changes impairing central vision. At operation, a cataract may be found which could not be seen through a densely opaque cornea.

Some patients need special attention to assure success at operation. Children often require skilled and efficient nursing. An extremely anxious patient may be an unsuitable patient. Totally deaf persons need special instruction by simple signs communicated by touch.

Eyes most amenable to surgery have central opacities or a more widespread opacity of moderate degree, only slight vascularization and normal tension. No adverse intraocular or extraocular condition should exist. Extraocular conditions which make operation more difficult are inefficient closure of the eye as in exophthalmos or chronic conjunctivitis.

Few complications are associated with corneal grafting. One of the most serious is prolapse of the lens through the the wound in the cornea during the operation. Damage to lens at surgery may cause cataract but careful technique avoids this.

With favorable circumstances, a clear graft may improve vision to 6/12 or better. Because the degree of improvement is not predictable, caution is necessary in selecting patients with only one seeing eye for operation.

Thomas, J. W. Tudor: On Advising a Corneal Graft, British M. J. 4972: 880-882 (*March*) 1956.

Rheumatoid Arthritis —Rehabilitation

A major source of crippling and disability with rheumatoid arthritis is musculoskeletal deformity. Prophylactic and corrective orthopedic measures to overcome deformities are as essential as systemic therapy. Bony and cartilaginous changes are not the major cause of deformity. Changes in the periarticular soft tissues, muscles, fascia, and skin are more important. The alterations in these tissues are amendable to corrective measures.

Simple orthopedic treatment is usually sufficient to treat slight musculoskeletal deformities. Trauma and over-use of the joint are avoided during an acute inflammation. Weight-bearing should be eliminated and bed rest is usually necessary. Immobilization in functional position by splints

(*Continued on page* 387)

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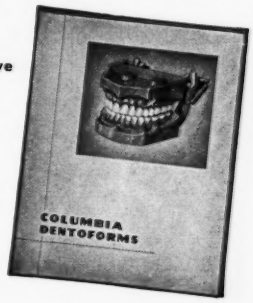

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Total No. of Patients	Total No. of Applications	Average Maintenance Period (in minutes)
81	192	70.8

Peak maintenance period of 311 minutes noted. *All patients were under treatment for lesions of the anterior labial gingivae. No evidence of local or systemic toxicity, irritation, or side reactions.

Kenalog—triamcinolone acetonide, in 0.1% concentration, proved clinically superior by paired comparisons to higher concentrations of hydrocortisone, prednisolone, and fluoromethelone.[2] Well tolerated—no topical reactions in the mouth reported from the use of Kenalog in Orabase. Small amounts of steroid released (when the preparation is used as recommended) make systemic effects very unlikely...no other adverse effects even when swallowed.

INDICATIONS: recurrent ulcerative stomatitis / erosive lichen planus / denture stomatitis / traumatic lesions (denture sore spots, desquamative gingivitis and stomatitis, aphthous stomatitis)

SUPPLY: 5 Gm. tubes. Each Gm. supplies 1 mg. triamcinolone acetonide.

DOSAGE: Apply a small dab (¼ inch or less) of medication to the lesion, using enough only to coat the affected area with a thin film, preferably at bedtime to permit steroid contact with the lesion throughout the night. Also, if necessary, apply the preparation 2 or 3 times daily, preferably after meals.

REFERENCES: 1. Kutscher, A. H., *et al.:* Oral Surg. Oral Med. Oral Pathol. *12*:1080-1089 (September 1959). 2. Cahn, M. M. and Levy, E. J.: Antibiot. Med. & Clin. Ther. *6*:734 (December 1959).

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or casts may be needed. The joint is not used until inflammation has subsided and the patient's muscles can stabilize the joint in functional position.

The first step in correction of slight deformities is elimination of contractures by passive stretching. Stretching is done by the patient after initial instruction by the physician or physical therapist. The exercise is performed for one-half hour three times a day until full motion is restored and then is done for five minutes daily. The original schedule is resumed if range of motion diminishes.

Muscle exercises must be gradual since the stamina of the arthritic patient is low. Many short periods of exercise during the day are prescribed. Exercises are continued until muscle power is normal. Use of the joint is supervised and is increased gradually to prevent trauma.

Moderately severe permanent deformities are not benefited by stretching and exercise. They may require operative procedures. Manipulation under anesthesia may restore the range of motion and is most likely to be successful if the patient stopped using the joint at an early stage in the disease. Casts and traction are used to maintain position postoperatively, and exercises are performed under supervision until muscle strength is regained.

Severe deformities do not respond to manipulation and require open operation. Deformities should be corrected as soon as the patient is seen unless acute inflammation exists. Deferring surgery until arthritis is in a "burned-out" phase results in severe disability and rehabilitation is difficult. Arthritis rarely exacerbates after operation.

Operations are designed to correct the principal causes of joint deformity. These are: scarring of the periarticular tissue, shortening of the capsule, and contracting in circumference of the capsule; shortening of the muscle fascia, and skin on the flexor aspect of the joint; overstretching of the extensor muscles leading to weakness. Muscle bellies adhere, reducing contractility, and articular surfaces

(*Continued on page* 388)

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 378 *and* 379)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor
DENTAL DIGEST
708 Church Street
Evanston, Illinois

From: _____

_____

Subject: _____

Explanation of Procedure:

Sketch:

Suggestion submitted cannot be acknowledged or returned.

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become irregular and interfere with motion.

Preston, Robert L.: The Rehabilitation of the Patient with Rheumatoid Arthritis, New York J. Med. **55**:2887-2897 (*December*) 1955.

Iodine

Iodine is one of the most plentiful substances found in the earth's crust. Lack of good distribution rather than scarcity of the element is responsible for deficiency wherever it occurs. More iodine is to be found in the earth's crust than in the sea.

There is an inverse ratio between the incidence of endemic goiter and the amount of iodine to be found in the soil of a given geographic region. There is a high incidence of goiter in the great goiter belts of the Alps, Himalayas, Pyrenees, Thames Valley, American Great Lakes region, Central Plain, and Pacific Northwest.

It is implied that the iodine intake of the population living in a given district is basically dependent upon the iodine content of the soil. There is also some evidence that the incidence of endemic goiter is proportional to the iodine found in the drinking water of a given geographic area.

Inhabitants of regions not producing their own food are thus fed the same food as those people living in goiter belts and consequently they must have iodine added to their diets in some form. Infants are largely dependent upon the iodine content of milk for an adequate supply that is so necessary for normal growth and development. The iodine content of plants is higher in the autumn and winter months and at harvest time.

Human iodine deficiency is now recognized as a definite entity, but of complex etiology. One cause is the development of normal or pathologic factors increasing the body demand for thyroid hormone. Normal states requiring additional hormone are puberty, the menarche, pregnancy, menopause, and infection. Seasonal variation in iodine storage may also play a role.

Swenson, Roy E., and Smith, William P.: Iodine, Metabolism Requirement and Goiter Prevention, GP **19**: 84-91 (*February*) 1959.

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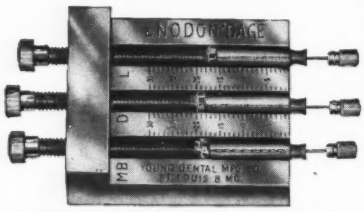

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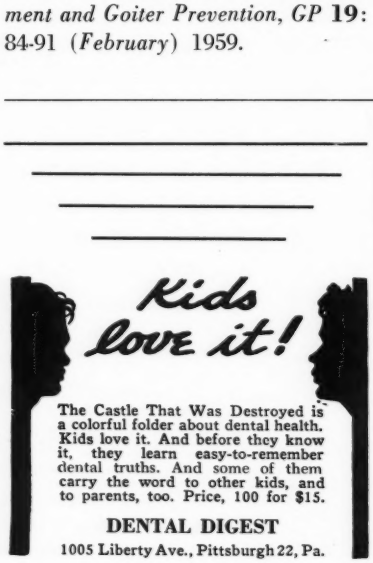
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Contra-Angles

How is Your Business Vitality?

There is not much in common between the management of American Telephone and Telegraph Company and conducting a dental practice. The giant corporation deals in billions of dollars every year; the dental practice that grosses $30,000 a year is a thriving business. The corporation and the dental practice have this in common: each is operated by people, each performs a service for people.

The president of AT&T (Mr. Frederick Kappel) told a group of graduate students in business administration that a corporation, similar to a person, can experience a diminishing vitality with age and that death may set in before the cause is recognized and corrected.

Mr. Kappel catalogued these signs of weakness in a business:

"1. Do the executives and managers cling to old ways of doing things in the face of new conditions?

"2. Are there real goals to drive for or is the company personnel content with present prosperity?

"3. Do executives think in terms of action—or merely reflectively to cover up embarassing questions about the adequacy of the current operation?

"4. Is there too much institutionalism in the business? Do the people in it think it can continue to exist without their wholehearted efforts?

"5. Has the business a reputation for being secure and stable, but never venturesome?

"6. Are young executives told to keep their mouths shut and do what they're told or are they encouraged to contribute ideas from the start?"

What is the similarity between these six stigmata of business weakness and

diminishing volume in a dental practice?

The dentist who clings to old ways of doing things while his colleagues in his community are improving their techniques will find that, in time, patients have left him. People have heard, usually from other dental patients that there are improvements in technical procedures and that there are new instruments to implement these techniques.

If we are waiting for people to come to our offices and demand to see the newer cutting tools, to examine the chemical structure of the newer anesthetic agents and sedatives, to ask for samples of the newer denture bases and teeth—we will wait a long time. People are not that curious or impertinent. If, however, these tools, agents, and materials are not available for use upon *them*, people will take their patronage to other dentists.

Dentists who would not consider using a coal-burning cookstove or a crystal set radio use dental equipment that is often 25 or more years old. The dentist who spends $4000 for an automobile often hesitates to spend the same amount for equipment that will make his work easier and more profitable.

Dentists fool themselves if they believe they can fool patients indefinitely. The excuse that the newer tools are not available for use in an office because they are still in the "experimental stage" will not confuse patients too long. People will not argue the point. They will go elsewhere for their service. A dentist would not patronize the gasoline station that still dispensed from a barrel. Why should he expect the public to patronize *him* if he leaves himself behind in the parade of progress?

There are not many personnel gathered in the average dental office. A dentist, a hygienist, an assistant, a receptionist-bookkeeper, a technician represent an unusually well-staffed office. Most dental practices operate without this number of personnel. Compared to the thousands of employees of AT&T the personnel problem in the dental office would appear to be a simple one. Not so. The service and success of AT&T would not be jeopardized seriously by the dereliction, insolence, or inefficiency of 500 employees. A dental practice can be destroyed by *one* person.

An arrogant dentist or a rude employee will not attract patronage or hold it despite the knowledge, the skill, the equipment that is at hand. The finest physical surroundings will not compensate for deficiencies in human values. In the extremely personal kind of service that the dentist offers the human equation is more important in the dental office than it is in the giant and impersonal corporation. If a telephone operator offends I can sputter and spurt and refer any complaint to a high echelon for adjustment. I will not have my telephone removed. If a patient finds a dentist or someone on his staff objectionable he has no other choice except to take his patronage elsewhere. It is as final as that!

Ironically, dentists are less sensitive to their public relations than is "the voice with a smile." The spectacular success of AT&T as a service corporation and as an investment stock proves

(*Continued on page* 390)

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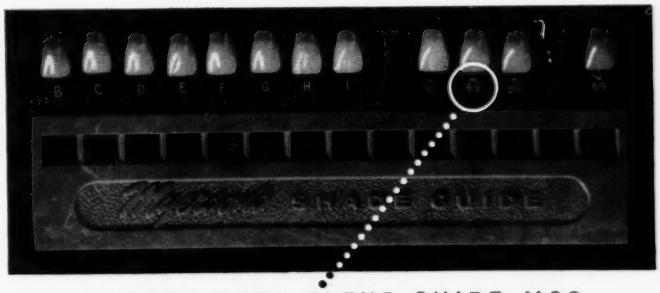

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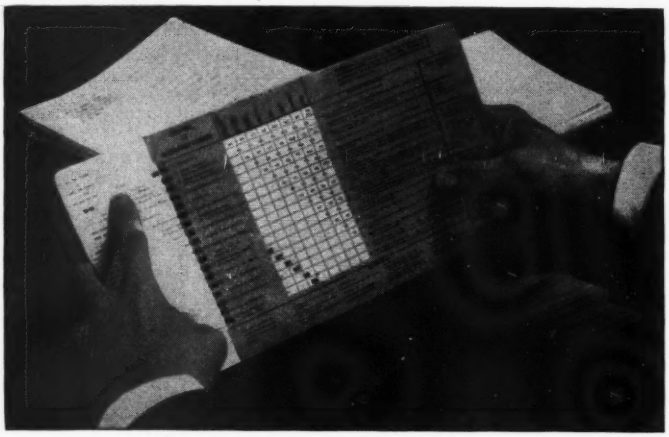
that the people who manage this enterprise know their market and their customers. How many dentists that you know are as alert to their opportunities?

Not too many years ago it was popular for some of the pious frauds in the profession to attack anyone who advocated sound practice management. He was supposed to be an enemy of the sacred trust and of the professional status. Many of these hypocritical fakirs had secure teaching jobs, had already accumulated a fortune, had married a rich woman—or were themselves bankrupt and resented success coming to anyone else. All this has changed greatly. There are still some frauds to be heard who speak as if dentists had some secret pact with the gods and were apart from ordinary mortals. Realism assures us that *not* to be efficient in practice is to be unprofessional and unethical—to be dishonest.

Frequent self-appraisal and a constant search for signs of diminishing vitality are as important in a dental practice as in the management of a corporation.



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The Dentist Cannot be Trained Too Much

A distinguished educator (Bryon S. Hollinshead, Director of the Committee on the Survey of Dentistry) has suggested some revision in the programs of dental education. That is commendable. Dental education can stand improvement. The method of improvement is important. To *reduce* the time spent in training in techniques and biologic sciences and to *add* time in socioeconomic subjects may not be the method.

Here is one suggestion made before the Harvard Dental Alumni Association: "Doctor Hollinshead suggested that dental schools establish a new section of dental health and practice:

" 'My suggestion would be that this section be allowed to develop a four-year course, meeting three hours per week each semester. I have thought of this course as consisting of a one-hour weekly lecture to the whole class, a one-hour discussion with students divided into small sections of not more than twenty-five each, and one-hour section meetings to consider weekly papers the students would prepare based upon their readings, the lecture, and the discussion.' Such a four-year course would include such general headings as: history and orientation, dental health and society, psychologic and economic factors in dental practice, hospital relations, continuing education and research, and professional ethics.

"Rather than overcrowding the already crowded dental curriculum, Doctor Hollinshead suggests that this new section be incorporated by paring nonessentials from the list of current course offerings:

" 'People who know the dental curriculum intimately, tell me that there could be a substantial pruning in such subjects as pathology, bacteriology, physiology, pharmacology, anatomy, and some of the technical phases of restorative dentistry, without any loss to the main purposes of the curriculum.' "

Three hours taken away from clinical subjects each week for four years and spent in socioeconomic studies is

(*Continued on page* 392)

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not my idea of an improved training program for dentists. Some time should be spent on these subjects, but not that much. I concede the importance of the humanities and the social sciences to produce well-rounded and cultured gentlemen. Despite the degree of his culture the dentist is expected to diagnose and treat a particular form of disease. He is required to be a clinician. He cannot have too much knowledge of biologic and clinical subjects. Professional competence is more important than a nodding acquaintance with social subjects.

I have no patience with anti-intellectualism. I have no more patience with people at the other extreme: those who believe that anything that sounds abstract, philosophical, esoteric, and is expressed in high-flown jargon must be the pure distillate of the intellect.

There is a tendency in dental education to delegate too much responsibility to people who know little about clinical problems: to non-dentists. Dental educators should, by all means, call on all the scholarly disciplines to improve the content of dental education. The dental educator, however, should not forget that his job is to train young people to become clinicians, not doctors of philosophy. That does not mean that we should not respect the scholarship and use the contributions of doctors of philosophy. There are signs that we may be becoming too fancy in our educational objectives.

The two-year predental course is presumed to introduce students to the cultural and social subjects and to the humanities. The four-year dental course is to integrate the student with medicine and to train him to be a clinician. Any dilution of the training in the clinical years may make the dentist less competent in the work he is required to perform: the diagnosis and treatment of disease. —E. J. R.

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